

M A P

Showing the district supplied by the Bath Corporation Waterworks, the City boundary and the elevation above mean sea level.





The letters M, B, and C show the portion of Monkwoods, Batheaston, and Charlcombe Waterworks.



1901.

THIRTY-SIXTH
ANNUAL REPORT

TO THE

BATH URBAN
SANITARY AUTHORITY

BY THE

MEDICAL OFFICER OF HEALTH.

"Salus Populi, Suprema Lex."

BATH:

PRINTED AT THE "BATH CHRONICLE" AND "BATH PICTORIAL" OFFICES, BATH.

1902.

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BATH URBAN SANITARY AUTHORITY.

MAYOR :

COUNCILLOR E. E. PHILLIPS, J.P., M.R.C.S.

HOUSING OF THE WORKING CLASSES COMMITTEE.

CHAIRMAN :

COUNCILLOR T. B. SILCOCK, B.Sc.

ALDERMAN :

DR. TUCKETT, J.P.

COUNCILLORS :

W. F. GOULD
J. HOWARD
J. W. KNIGHT

G. F. POWELL
H. J. THOMAS
J. T. WALDRON

SANITARY COMMITTEE.

CHAIRMAN :

ALDERMAN J. RUBIE.

ALDERMEN :

A. COCHRANE, J.P. F. G. FARWELL, J.P. DR. TUCKETT, J.P.

COUNCILLORS :

W. S. BRYMER
T. G. P. HALLETT, J.P.
J. E. HENSHAW, J.P.
F. G. ISAACS
B. JOHN
PRESTON KING, M.D.
C. B. OLIVER, J.P.
E. E. PHILLIPS, J.P. (Mayor)
G. F. POWELL

T. F. PLOWMAN
W. ROADHOUSE
C. H. SEERS
T. B. SILCOCK, B.Sc.
E. B. TITLEY, M.A.
H. J. THOMAS
W. TONKIN
T. VINCENT
J. T. WALDRON

SUB-COMMITTEES

Appointed by the Sanitary Committee.
STATUTORY HOSPITAL MANAGEMENT.

COUNCILLOR T. VINCENT, Chairman.

ALDERMEN :

A. COCHRANE, J.P. J. RUBIE DR. TUCKETT, J.P.

COUNCILLORS :

F. G. ISAACS

B. JOHN

PRESTON KING, M.D.

E. E. PHILLIPS, M.R.C.S. (Mayor)

W. ROADHOUSE

H. J. THOMAS

T. VINCENT

J. T. WALDRON

SUB-SANITARY, ABATTOIRS, DISINFECTOR and MAPPING
and RIVER POLLUTION PREVENTION.

ALDERMAN F. G. FARWELL, J.P., Chairman.

ALDERMAN J. RUBIE. ALDERMAN DR. TUCKETT, J.P.

COUNCILLORS :

W. S. BRYMER

F. G. ISAACS

B. JOHN

PRESTON KING, M.D.

C. B. OLIVER, J.P.

E. E. PHILLIPS, (Mayor)

W. ROADHOUSE

H. J. THOMAS

T. VINCENT

J. T. WALDRON

STAFF.

INSPECTOR OF NUISANCES.

Inspector of Canal Boats.

Inspector under the Food and Drugs Act.

W. A. CRAVEN. Salary £155.

Certificates of Sanitary Institute, qualifying as Inspector of Nuisances
and as Meat Inspector.

ASSISTANT INSPECTOR OF NUISANCES,

Inspector of Tenement Houses.

Inspector of Dairies, Cowsheds, and Milkshops.

Clerk to the Statutory Hospital Management Committee.

F. W. KELWAY, Salary £90.

Certificate of Sanitary Institute, qualifying for Inspector of Nuisances.

GENERAL ASSISTANT AND CLERK.

SILAS HAWKINS. Wages £58 10s.

OFFICE BOY.—PERCY CHAPPEL. Wages £13.

CONTRACTOR FOR DISINFECTING.

WILLIAM HAYMAN, 13, Calton Road.

CONTRACTOR FOR REMOVAL OF INFECTIOUS PERSONS.

SAMBOURNE WEEKS, 24, Upper Borough Walls.

MEDICAL OFFICER OF HEALTH.

W. H. SYMONS, M.D. (Brux.), M.R.C.S., L.R.C.P., F.I.C.,

Diplomate in Public Health, University of Oxford.

Fellow of the Royal Meteorological Society.

Salary £400.

Telephone Numbers : Office, 124 ; Hospital, 198.

SUMMARY.

CITY AND COUNTY BOROUGH OF BATH.



HEALTH RESORT & CHIEF TOWN OF SOMERSETSHIRE.

Situation—Latitude $55^{\circ} 23' N$; Longitude $2^{\circ} 21' W$.

Elevation—Varies from 60 feet above sea level on the lower banks of the river to about 550 on either side, mean elevation 285 feet O.D., the hills rising to about 750 feet not far from the boundaries.

Geological Formation—Oolitic clays, limestones and sands

Area of the Borough—3,338 statute acres land, 44 acres water.

Population—1891 Census, 49,817 ; 1901, Estimated 49,800.

Density of Population—Per acre, 14·9 ; per house, 5·3.

Assessable Value—October, 1901, £304,808.

Number of Inhabited Houses—Census 1891, 8,933 ; 1901, 9317.

„ „ „ Rate Book, October, 1901, 9,773.

Rainfall—1901, 26·41.

„ Average, 35 years, 1866—1900, 30·79 inches.

Birth-rate—19·58 per 1,000 annually, Average, 1891-1900, 20.

Comparative Mortality Figure—1901, 900.

Average Death-rate—1891-1900 18·58 per 1,000 annually.

Crude Death-rate—1901, 17·59 ; including non-residents, 16·12 per thousand annually.

Recorded Death-rate reduced to Standard for Age and Sex Distribution—15·20.

Death-rate from 7 principal Zymotic diseases—0·78 per 1,000 annually.

Deaths under 1 year—101 or 2·30 per 1,000 living of all ages.

Infantile Mortality—104 per 1,000 Births.

Deaths under 5 years of age—131 or 2·6 per 1,000 living of all ages.

Deaths between 5 and 60 years of age—271, or 5·5 per 1,000.

Death over 60 years of age—401 or 8·1 per 1,000 of all ages.

To the Mayor, Aldermen and Councillors of the Bath Urban Sanitary Authority.

GENTLEMEN,—

I have the honour of submitting to you the Thirty-sixth Annual Report of the Sanitary Condition of Bath, counting from the first printed report, or the sixth counting only those which I have personally presented. It should be remembered that these reports are for the information of the Local Government Board and of persons seeking a place of residence as well as for the Bath Urban Sanitary Authority, and that a statement of the local circumstances and history of local sanitary questions, which may seem superfluous for the latter, may often be needed by the former. I shall endeavour to follow the suggestions given in the "Memorandum as to Annual Reports of Medical Officers of Health," which is sent to me through your Clerk from the Local Government Board.

Physical Features and General Character of the District.

Bath is situated in N. Lat. $51^{\circ} 21-24'$ and W. Long. $2^{\circ} 20-23'$, and is built chiefly upon the Lias and Lias Clays, but the Upper Lias or Midford Sands, Inferior and Great Oolites, and the Fuller's Earth lying between them, are well represented in the higher portions of the city, while Mammal Drift Gravel and Alluvium form the sub-soil near the river, but the deposit of Gravel is more extensive than Alluvium.

Bath lying in a bend of the valley of the Avon has sloping ground with every possible aspect, but the slopes facing South and South-West have been most built upon. The elevation of the city varies from 60 feet on the banks of the river, to about 550 on either side. The mean elevation of Bath being 285 feet, according to my estimate. Half-a-mile outside the Northern boundary, Lansdown rises to about 750 feet above the sea level. The mean elevation of London is 60 feet above the sea level, or less than 3 feet above Pulteney Weir.

In my last Annual Report I gave more information concerning the geology of Bath, and I published a geological map of Bath on the scale of two inches to the mile. Further study has not revealed any serious errors in that map, and I hope at some future time to furnish a similar map on a larger scale. This year I have reproduced a map which Mr. Gilby has prepared for the Waterworks Committee. In the original the spaces between various contour lines are distinctly coloured. I have used numerals to indicate the mean elevation of each space, and my friend, Dr. Dickson, prepared the photograph from which the print was taken. The map shows the very restricted character of the city boundary by the thin black line; the broad shaded line encloses the district supplied with water by the Bath Corporation Waterworks, having a population of about 68,000.

Meteorology of Bath.

The meteorology of Bath has also been somewhat fully discussed in back reports, and I need now only state that the five climatic stations under the Corporation have been kept in good working order, and observations regularly taken. Telegrams have been dispatched daily throughout the year at 8 a.m. and 6 p.m. to the Meteorological Society in London, and the results have been regularly published in the Meteorological Office daily weather report, and also in London and Bath daily papers. Mr. Shaw, reporting on the Central Station, expressed himself as fully satisfied with the general arrangements, but he pointed out that the Empire Hotel would probably interfere with our sunshine records. A shadow is cast upon the instrument in the early morning, and in winter we fail to record at least half an hour of sunshine. We shall, therefore, have to seek a new station or discontinue the publication of these results. It has been suggested to me that the proprietors of the hotel might provide an instrument, and send the cards to my office daily. I have had an interview with the Manager of the hotel, but have not yet received a definite answer from him. Should this be done, we shall be able to use our instrument for observations at another station on Claverton Down.

SUMMARY OF OBSERVATIONS ON THE TEMPERATURE DURING THE YEAR 1901.

As change of temperature appears to be the chief factor in determining the fluctuations of our death rates for short periods, the following summary of observations during each month of the year may be interesting:—

JANUARY.—The mean temperature of the month was slightly above the average; the first week was cold, but from the 8th the weather was milder until the 23rd, when it was cold and dull from the 23rd to the 31st. The mean atmospheric pressure was above the average.

FEBRUARY.—During the greater part of the month the weather though cold was fine and settled. The mean temperature was slightly below the average. The atmospheric pressure was fairly constant until the last few days of the month, when there was a gradual fall of the mercury, accompanied by westerly winds and somewhat unsettled weather.

MARCH.—For the greater part of the month the weather was dull and cold, with frequent rain, hail, and snow storms; with thunder on two occasions and strong south-westerly gales. The mean temperature was below the average. The barometer was unsteady and below the average.

APRIL.—The weather during the first half of the month was stormy and unsettled, with frequent hail storms; there were thunderstorms on the 8th and 15th. The mean temperature was above the average.

MAY.—The weather was fine and exceptionally dry. There was a considerable variation of temperature during the month, some days being much in excess of the average, while others were some degrees below. The mean temperature was above the average. Barometric pressure was steady and above the average.

JUNE.—From the 1st to the 10th the weather was mild, unsettled, cool, and dull from the 11th to the 23rd, and then mild and bright from the 24th to the 30th. The mean temperature was below the average. Atmospheric pressure was above the average.

JULY.—The weather was warm and bright until the 22nd, and cool, with frequent rain, from the 23rd to the 31st. The changes in temperature were greater than usual. The mean temperature was much above the average. Atmospheric pressure was about the average.

AUGUST.—The weather was generally fine, warm, and bright till the 25th. The mean temperature was slightly above the average. Barometric pressure was above the average.

SEPTEMBER.—The variations in the temperature during this month were very slight; the weather was somewhat unsettled during the second and third weeks. The mean temperature was about the average. Barometric pressure was generally steady, and slightly below the average.

OCTOBER.—The weather varied considerably; the first ten days were dull and oppressive, with frequent rain. From the middle to the end of the month the weather was unsettled, and frost was registered on five occasions in the screen. Temperature was slightly above the average.

NOVEMBER.—The most remarkable feature of the month was the remarkably low rainfall. From the 2nd to the 9th fogs of unusual density prevailed. Temperature was much below the average and the changes were great and frequent.

DECEMBER.—The weather was variable, with several days of frost from the 15th to the 23rd, when there was a sudden change, with rain till the end of the month. Mean temperature was slightly below the average.

These facts are graphically shown on the charts, on page 48. The rainfall at the Central Climatic Station being shown by shaded column, while the rainfall at Monkwoods Reservoir is shown by a solid black line to compare with the yield of the Monkwood Springs.

Deaths actually occurring weekly are shown by shaded columns in the small chart, while the solid lines show the deaths registered during each week.

BATH CLIMATIC STATION, HENRIETTA PARK.

Summary of Meteorological Observations for the Year 1901.

Estimated Height above Sea Level: Barometer, 84 feet; Thermometers, 70 feet.

1901.	Barometer.					Thermometer in Stevenson screen.										Earth Temperatures.				Bright sunshine in hours.	
	Mean at 9 a.m. corrected to 32°.	Absolute Maximum corrected.	Day of the Month.	Absolute Minimum corrected.	Day of the Month.	Range.	Mean Temperature of Air.	Mean of Maximum.	Mean of Minimum.	Absolute Maximum.	Day of the Month.	Absolute Minimum.	Day of the Month.	Mean of Dry Bulb.	Mean of Wet Bulb.	Relative Humidity.	4 feet. in gravel.				1 foot mean.
																	Max.	Min.	Mean.		
January	29.949	30.518	23	29.377	30	1.141	39.1	44.4	33.3	52.5	27	21.8	9	37.8	36.3	86.	46.7	45.0	45.5	41.2	40.7
February	29.987	30.520	15	29.199	27	1.321	36.9	42.3	31.5	52.0	28	19.5	14	35.8	34.2	85.	45.3	42.2	43.2	38.3	55.4
March	29.682	30.436	23	29.981	30	1.455	40.4	46.8	34.3	57.8	12	22.1	26	40.9	38.2	78.	44.4	43.0	43.9	42.0	83.7
April	29.746	30.211	18	29.283	10	0.928	51.3	57.3	45.8	74.0	24	28.5	2	49.6	45.0	70.	48.7	43.4	45.8	48.1	176.4
May	30.013	30.316	14	29.233	7	1.083	53.3	64.6	43.2	77.0	29	32.0	5	54.6	49.6	69.	54.3	48.8	51.1	56.2	273.7
June	29.975	30.366	25	29.613	13	.753	57.5	67.0	49.2	79.0	29	39.0	15	59.5	54.3	70.	57.3	54.6	56.0	61.2	219.3
July	29.936	30.216	17	29.508	25	.708	64.3	74.0	55.9	87.5	19	49.0	16	65.3	61.8	80.	62.2	57.6	60.3	66.7	206.8
August	29.978	30.362	20	29.416	26	.946	60.7	70.0	52.5	81.0	25	45.0	28	62.3	57.5	73.	62.2	61.4	61.8	64.7	220.9
September	29.819	30.205	28	29.276	17	.929	57.9	66.0	50.6	71.8	30	42.2	16	58.6	55.0	78.	61.3	59.7	60.3	50.6	137.1
October	29.841	30.269	27	29.174	18	1.095	49.8	58.1	41.9	69.0	1	29.0	27	49.5	47.5	86.	60.0	54.2	57.5	53.1	99.4
November	30.105	30.578	25	29.023	13	1.555	39.5	45.7	33.2	57.0	11	18.2	17	38.9	37.3	87.	54.2	48.0	50.5	43.3	42.8
December	29.570	30.342	4	28.748	25	1.594	39.2	45.8	32.0	58.0	30 & 31	20.0	22	38.8	37.5	88.	47.6	43.2	46.2	39.3	41.8
Means for Year	29.884					1.042	50.0	56.9	42.0					49.4	46.3	78.5	53.7	49.9	52.0	50.0	1598.0

MONTHLY RAINFALL AT VARIOUS STATIONS, 1901.

Observations 9 a.m. daily	Climatic Station, Henrietta Park. N. Latitude 51° 23' 8" W. Longitude 2° 21' 14" 5" Gauge. O. D. 67ft.				Statutory Hospital, Climatic Station N. Latitude 51° 21' 52" W. Longitude 2° 19' 10" 5" Gauge. O. D. 52ft.				Bath Royal Linc. and Sci. Inst. N. Lat. 51° 22' 52" W. Lon. 2° 21' 21" Mean 1866 to 1900.
	R. in & 5n" w Total depth in inches.	No. of days on which rain fell.	Greatest fall in 24 hours.	Date.	R. in & 5n" w Total depth in inches.	No. of days on which rain fell.	Greatest fall in 24 hours.	Date.	
January	2'01	17	0'36	25	2'15	14	3'36	23	2'90
February	2'85	7	2'26	28	1'17	7	4'41	28	2'33
March	2'49	14	4'49	29	2'95	12	5'50	1	1'97
April..	2'83	15	5'59	3	2'85	13	6'66	3	2'03
May ..	1'24	5	4'43	7					2'03
June ..	1'90	13	4'46	30	1'90	13	4'40	30	2'12
July ..	2'86	8	5'56	26	3'11	7	9'90	25 & 27	2'59
August	1'53	10	4'44	14	1'84	10	5'53	14	2'78
September	2'50	14	6'63	16	2'70	14	7'73	16	2'97
October	1'60	17	3'36	3	2'34	18	3'39	17	3'13
November	6'66	6	2'24	13	8'85	6	2'25	13	2'93
December	5'94	18	1'33	12	5'99	19	1'42	12	3'03
Total	26'41	144	6'15						30'79

BATH CLIMATIC STATIONS.

Comparative Weekly Readings, 1901.

			Henrietta Park.		Mean Air Temperatures at various Stations.				Hen. Park.	Relative Humidity at various Stations at 9 a.m.				
			4 feet Temperature	Air Temperature 9 a.m.	Henrietta Park.	Statutory Hospital.	Kingswood School.	Combe Park.	Rain.	Henrietta Park.	Statutory Hospital.	Kingswood School.	Combe Park.	
January	5	1	Flood	32'3	34'8	35'3	36'4	35'2	3'02	97	91	95	97	
"	12	2	"	31'9	33'7	32'1	32'2	35'2	'70	85	91	96	91	
"	19	3	"	45'2	41'9	42'8	40'9	40'6	'64	90	97	98	95	
"	26	4	"	45'4	42'6	43'8	42'7	42'5	'51	84	86	92	95	
February	2	5	"	45'5	37'3	37'4	44'6	42'8	'38'6	'28	83	89	86	84
"	9	6	"	44'1	34'5	35'4	34'1	34'4	'35'4	'21	83	81	89	87
"	16	7	"	43'3	32'6	33'6	29'9	32'9	'38'7	—	84	83	89	87
"	23	8	"	42'3	36'0	37'2	35'6	35'6	'36'6	'03	83	78	87	86
March	2	9	"	42'6	43'9	44'2	41'9	42'3	43'4	1'12	85	81	92	88
"	9	10	"	43'7	44'8	43'6	41'5	42'1	42'7	'84	80	81	90	87
"	16	11	"	44'1	39'9	41'1	39'8	40'6	41'7	—	87	86	87	97
"	23	12	"	44'3	39'1	39'1	37'3	38'3	39'0	'21	76	71	79	73
"	30	13	"	43'8	37'2	35'9	34'6	34'5	35'5	'71	77	85	74	79
April	6	14	"	43'6	45'7	44'5	42'5	43'4	45'5	'94	78	83	77	82
"	13	15	"	44'9	47'3	47'0	43'9	45'3	46'4	1'48	75	78	84	78
"	20	16	"	45'8	49'4	47'0	45'5	45'7	46'0	'47	64	62	69	68
"	27	17	"	47'2	55'6	54'0	53'4	54'3	51'8	'04	67	64	69	71
May	4	18	"	47'3	51'4	48'8	48'7	50'1	48'8	—	70	66	78	70
"	11	19	"	49'4	48'7	48'6	47'1	47'7	49'4	'87	72	73	81	79
"	18	20	"	50'3	52'9	51'7	49'9	50'8	51'7	—	67	74	73	71
"	25	21	"	52'3	58'5	51'4	54'4	50'5	55'6	—	66	74	71	64
June	1	22	"	53'9	60'1	57'6	58'5	57'4	58'6	'41	70	70	75	73
"	8	23	"	54'9	58'8	58'8	56'8	57'2	58'6	'09	73	72	80	65
"	15	24	"	56'1	57'3	54'5	55'0	54'8	54'6	'19	67	64	72	63
"	22	25	"	56'2	58'9	56'8	55'1	55'1	56'8	'74	71	72	81	70
"	29	26	"	56'9	63'0	59'6	59'1	59'3	60'0	'38	68	62	65	62
July	6	27	"	57'9	62'5	64'2	61'2	60'9	62'9	'94	77	77	82	75
"	13	28	"	59'5	66'0	63'9	60'4	65'8	62'8	'52	77	74	75	76
"	20	29	"	60'8	70'0	66'3	67'0	66'3	66'8	—	70	65	68	65
"	27	30	"	62'0	63'0	62'5	61'2	61'0	62'8	1'86	81	80	84	76
August	3	31	"	61'7	63'5	63'7	63'6	63'1	62'1	N M	78	76	81	79
"	10	32	"	62'0	64'4	61'8	61'2	61'5	62'0	'20	76	79	78	76
"	17	33	"	61'8	60'9	59'0	57'8	58'3	58'7	'60	73	78	83	77
"	24	34	"	61'6	63'9	62'6	62'4	62'9	63'4	—	71	77	76	72
"	31	35	"	61'9	58'8	58'1	56'4	56'5	57'9	'73	70	76	77	67
September	7	36	"	61'0	57'7	56'1	54'5	56'5	56'3	'11	72	68	65	74
"	14	37	"	60'3	60'1	59'6	62'9	57'7	59'0	'52	81	78	87	86
"	21	38	"	60'0	57'1	56'8	55'8	55'1	55'0	1'47	78	84	88	83
"	28	39	"	59'9	59'5	58'4	57'4	58'3	58'8	'33	82	77	88	86
October	5	40	"	59'9	57'4	57'1	56'5	56'1	56'7	'66	84	78	89	86
"	12	41	"	58'9	51'2	50'8	49'6	49'5	49'5	'26	83	86	83	86
"	19	42	"	57'6	50'5	51'0	50'4	50'4	50'7	'56	90	85	88	93
"	26	43	"	56'3	42'1	43'6	44'9	46'3	44'2	'13	92	80	90	98
November	2	44	"	54'4	47'0	48'3	49'6	46'8	48'9	'06	81	79	86	81
"	9	45	"	53'1	35'6	37'8	37'5	38'6	37'6	N M	93	91	94	98
"	16	46	"	51'8	40'7	42'5	41'0	41'3	41'2	'41	82	81	87	86
"	23	47	"	50'1	43'0	42'6	43'2	41'8	42'6	'25	84	86	88	87
"	30	48	"	48'8	34'9	35'5	37'6	39'4	36'1	—	89	85	87	85
December	7	49	"	47'6	43'6	42'8	41'2	42'0	42'3	'82	90	88	94	94
"	14	50	"	47'4	42'0	41'4	42'7	39'4	42'6	2'36	92	86	78	88
"	21	51	"	46'3	29'3	32'6	33'2	33'5	32'1	'07	87	67	82	84
"	28	52	"	44'7	34'9	35'0	40'0	34'5	36'6	2'02	89	98	95	93

Highest and Lowest Readings of the Barometer and Thermometers at the Bath Royal Literary and Scientific Institution, 1866—1901.

BAROMETER.					SELF-REGISTERING THERMOMETERS			
Year	Absolute Maximum	Day. Month.	Absolute Minimum.	Day. Month.	Absolute Maximum	Day. Month.	Absolute Minimum.	Day. Month.
1866	30'627	25'1	28'501	11'2	85'2	27'6	22'8	20'2
1867	30'766	2'3	28'79	8'1	84'2	13'8	8'5 9'	4'1 5'1
1868	30'672	15'11	28'732	24'12	90'5	22'7	21'5	3'1
1869	30'548	6'12	28'932	1'2	88'7	27'8	19'5	28'12
1870	30'644	2'12	28'925	23'10	90'	24'7	12'6	31'12
1871	30'518	12'12	28'800	16'1	85'2	13'8	12'4	1'1
1872	30'482	6'4	28'648	24'1	85'	21'7	24'2	26'3
1873	30'747	18'2	28'400	20'1	88'8	22'7	19'0	11'12
1874	30'745	6'3	28'613	11'12	87'4	19'7	15'8	31'12
1875	30'654	30'1	28'940	10'11	83'0	16'8	16'6	1'1
1876	30'694	15'1	28'337	4'12	92.0	13'8	22'0	9'1
1877	30'741	6'10	28'744	11'11	82'3	18'6	22'8	1'3
1878	30'713	12'1	28'805	14'2	87'0	26'6	17'6	24'12
1879	30'787	23'12	29'444	20'7	78'0	29'7	14'4	12'1
1880	30'739	21'1	28'767	16'1	85'0	4'9	16'4	21'1
1881	30'685	8'5	28'595	26'10	87'2	5'7	? 11'1	20'1
1882	30.978	18'1	28'850	29'4	79'0	12'8	19'5	11'12
1883	39'884	23'2	28'840	2'2	77'6	2'7	21'8	24'3
1884	30'716	5'10	28'615	26'1	87'9	8'8	24'8	30'11
1885	30'654	23'12	28'959	31'1	87'3	26'7	21'3	11'12
1886	30'757	24'11	28'529	8'12	84'0	4'7	20'0	7'3
1887	30'754	7'2	28'782	3'11	86'4	6'8	11'8	1'1
1888	30'724	10'1	28'694	28'3	80'2	9'8	19'6	30'1 2'2
1889	30'770	3'1	28'969	19'3	79'0	30'8	21'6	29'12
1890	30'726	23'2	28'684	23'1	76'6	24'5	13'0	23'12
1891	30'746	11'1 5'2	28'410	11'11	79'4	12'9	12'3	19'1
1892	30'612	30'3	29.266	19.2	81'2	3'7	15'0	27'12
1893								
1894								
1895					84'3	23'9		
1896	30'705	13'2	28'561	6'12	85'5	20'7	24'8	2'2
1897	30'682	21'11	28'17	30'12	85'	4'8	24'8	20'8
1898	30'653	11'12	28'722	25'11	87'8	8'9	25'8	25'2
1899	30'740	1'3	28'977	2'1	87'0	20'7 3'8	13'5	15'12
1900	30'570	17'3	28'572	19'2	89'0	19'7	15'8	9'2
1901	30'578	25'11	28'748	25'12	87'5	19'7	18'2	17'11

Notes by Mr. Milburn.

Plants in flower in Royal Victoria Park and its Botanic Garden, Bath, January 25th, 1902:—

- Anemone Coronaria (Poppy Flowered Anemone).
- Arbutus Unedo (Strawberry Tree).
- Berberis Japonica (Japan Barberry).
- Chimonanthus Fragrans (Japan Allspice).
- Cratægus Oxyacantha Variety Præcox (the Glastonbury or Holy Thorn).
- Cyclamen Coum (Spring Sowbread).
- Daphne Blagayana (Blagay's Daphne).
- Daphne Mezereum (the Mezereum).
- Daphne Mezereum Variety Album (White Mezereum).
- Daphne Laureola (Wood Laurel).
- Erica Carnea Variety Alba (White Flowered Heath).
- Erysimum Helveticum (Helvetian Wallflower).
- Galanthus Nivalis (Snowdrop).
- Hamamelis Japonica (Fringe-tree or Witch Hazel).
- Helleborus Fœtidus (Bear's Foot).
- Helleborus Niger (Christmas Rose).
- Helleborus Orientalis (Eastern Christmas Rose).
- Iris Histrioides.
- Iris Stylosa (Large-styled Iris).
- Jasminum Nudiflorum (Naked-flowered Jasmine).
- Lonicera Fragrantissima (Winter Honeysuckle).
- Osmanthus Illicifolius (Holly-leaved Olive).
- Prunus Davidiana (Early Flowered Plum).

As instancing the mildness of the climate of Bath, the Eucalyptus Globulus (or Blue-gum Tree) withstood several winters and flowered, thoroughly exposed, in a private garden at Sion Hill in 1900. The Camellia, too, in sheltered parts lives and flowers in the open, as also does the Chinese Fan-Palm (Chamerops Fortunei). The Aralia Sieboldii, the Myrtle, the Sweet Bay (Laurus Nobilis), the Christ's Thorn (Paliurus Aculeatus). Cupressus Funeris, and Sequoia Sempervirens, the Mammoth Tree of California, which is 80 feet high in the Park, are all hardy here, and may be considered a test of climate.

Luxuriant specimens of Pomegranate (Punica Granatum), trained against the walls of many of the dwelling-houses, produce their brilliant scarlet flowers and occasionally mature fruit. Also the Passion Flower (Passiflora Cœrulea) flowers freely in the open, and is conspicuous in the Autumn with its bright yellow fruits. Magnolia Grandiflora and several varieties of Ceanothus grow luxuriantly.

Specimens of the above may be seen growing freely in the Royal Crescent, the Circus, Lansdown Crescent, Green Park, etc. The Vine, too, trained against the walls of many dwellings, matures good fruit.

J. MILBURN, Superintendent.

Royal Victoria Park, Bath.

House Accommodation, especially for the Working Classes: its adequacy and fitness for habitation, sufficiency of open space about houses, and cleanliness of surroundings. Supervision over erection of new houses.

According to the Census returns there were in April, 9,317 inhabited houses, but a return furnished by the Clerk to the Urban Sanitary Authority for the half-year ending April 1st, 1901, gives 9,691 as the number of occupied private houses, hotels and shops where persons are presumed to sleep on the premises. There is, therefore, a difference of 374 between the returns gathered from the rate book and those furnished by the Census enumerators. For the half-year ending October 1st, the number of occupied houses on the rate book was 9,773.

Parochial Population and Return of Dwelling Houses and other Buildings, 1901.

District.	Population.		Private Houses, Hotels and Shops.				Other Buildings.		Assessable Value.	
			Apl. 1, 1901.		Oct. 1.		Oct. 1.		April 3.	Oct. 1.
	M.	F.	Let.	Void.	Let.	Void.	Let.	Void.		
Bathwick ..	1,384	2,900	730	91	745	87	70	9	38,347	38,307
Lyn. and Wid. ..	6,512	7,860	2,911	202	2,966	190	92	9	61,456	61,432
St. James' ..	1,801	2,512	624	24	629	28	133	13	25,269	25,241
St. Michael ..	870	1,192	405	28	404	26	73	3	24,125	24,125
St. Peter & Paul	490	712	255	6	256	5	61	7	19,777	19,777
Walcot ..	9,075	14,516	4,766	258	4,773	249	277	18	136,073	135,926
Bath ..	20,132	29,692	9,691	609	9,773	585	706	59	305,047	304,808

Bath is not now an overcrowded city, as it was in 1851, the population of the central city parishes was then 11,647 persons living in 1,349 houses; in 1901 there are in the same parishes 7,577 persons living in 1,342 houses. While the houses remain practically the same, in number and in kind, there has been a decrease of 35 per cent. in the population; overcrowding has vanished, the house density instead of being 89 per 100 houses is now 53.

The remainder of the city has decreased in population by 346 persons, from 1851 to 1901, while there are 1,935 more houses. Considering the city as a whole the population has decreased 4,423 in fifty years, but of these no less than 4,077 had been living in the overcrowded central parishes. During the same period, the population of the parishes immediately contiguous to Bath, and naturally suburbs of that city, has increased from 7,557 to 20,074, an addition of 12,517 persons, giving a nett increase for the whole district of 8,094.

The result of this migration from the central parishes to the suburbs has been to leave Bath practically free from overcrowded tenements if 300 cubic feet of air space per bedroom per person is accepted as a standard. There is still much to be done before our working classes can be considered properly housed; many of the landlords are poor men having a heavy ground rent to pay, and they allow the property to become dilapidated, roofs and rain water fittings to get out of order and the yards to be seldom properly paved, while some hundreds of houses are below the flood level.



PLATE I.—OLD HOUSES IN THE DOLEMEADS SHOWING FLOOD LEVEL.



PLATE II.—THE NEW WORKMEN'S DWELLINGS.

Liability to floods is one of the greatest evils we have. There were fifteen floods during the past fifty years when the water was 3 feet above the Pulteney weir, and on four occasions it was 12 feet or more above that point. The City Council have thoroughly considered the question of flood prevention, but they are advised that no reasonable expenditure of money would provide for carrying off the flood water of a great flood. I have had an opportunity of studying the effects of three floods, and have been able to trace very little illness to them, there is much damage to property and much inconvenience, but a flood is not an unmixed evil, it is the occasion of a thorough cleansing of the ground floor. Constant dampness of subsoil, and of walls built back-to-earth, are far more injurious than an occasional flood, and this cause of illness is aggravated when windows are allowed to become fixed and the space under the basement floor left unventilated.

Systematic house-to-house inspections have been made, but on account of want of time our work has been very limited in this direction; Little Corn Street being the principal street dealt with. Twelve notices under section 30 of the Housing of the Working Classes Act, 1890, were served for houses in this street, and the work required was carried out. This work was chiefly a thorough cleansing of the houses, the provision of new windows in the back walls of the houses so as to secure through ventilation, and of water closets sufficient in number to provide at least one for each twelve occupants; the yards were also paved and rain-water gutters, down pipes and gullies fixed. Only seven notices under this Act were served for the remainder of Bath, but in each case good work was done or the house closed. It was not necessary to take proceedings before the Magistrates in any case. There is ample scope for work in this direction, but with so small a staff it is impossible to do more than we do. Further details are given in the Inspector of Nuisances' Report on pages 59-60.

In the provision of Artizans' Dwellings, the Housing of the Working Classes Committee has done good work. In the Annual Report for 1898, particulars were given concerning a scheme for improving the Dolemeads by demolishing 27 old houses, raising the site 13 feet, so that the ground floor level is 9 inches above that of the highest recorded flood, and building 40 new houses at rentals of from 5/- to 6/6 per week. This has now been accomplished. The first portion of 16 houses were declared fit for occupation on June 24th, and now all the houses are let. The accompanying plates will show the character of the houses.

Description of Plates.

Plate 1.—Two old houses in the Dolemeads about to be demolished in connection with this Scheme.

Plate 2.—Reproduction of photograph of some of the new buildings, showing the entrance to the new street.

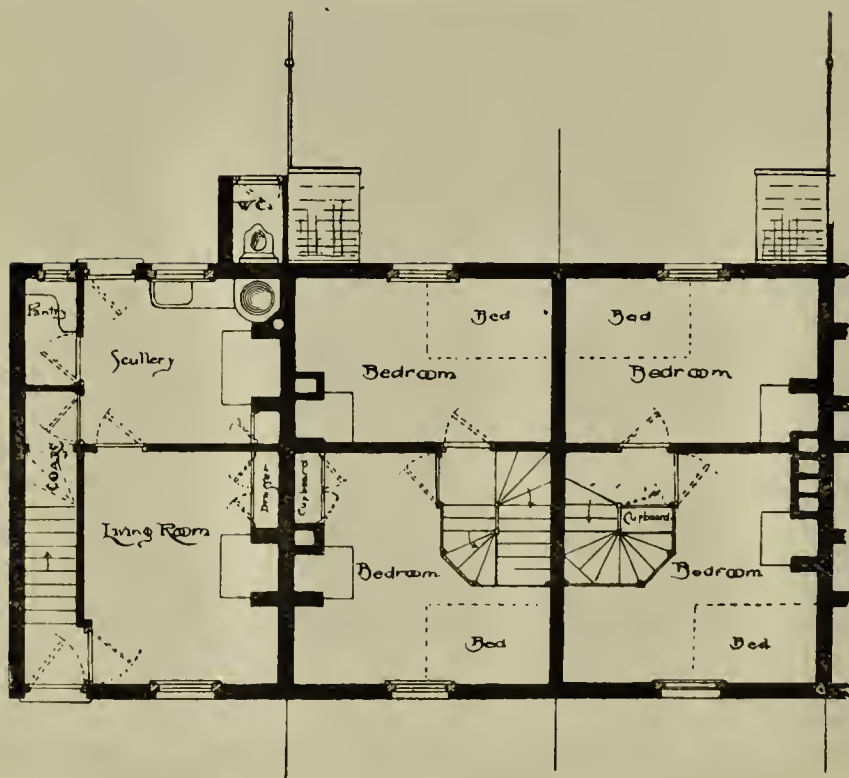
Plate 3 shows front elevation; ground and first floor plans and cross section of the smallest houses.

Plate 4 shows a front elevation and ground, first and second floor plans of the largest end houses.

The first-named class, of which there are 4, contains, on the ground floor:—A living room, 12-ft. by 10-ft. 2-in., fronting the street, with



FRONT ELEVATION



GROUND PLAN

FIRST FLOOR PLAN

ATTIC PLAN

dresser, etc., at the back a scullery, 13-ft. 3-in. by 8-ft. 6-in., which may be used as a kitchen, having a fire place, washing boiler with galvanised iron top and hinged cover, so arranged as to convey the steam into the flue instead of allowing it to escape into the room, a dish trough, drinking water tap, etc. Opening out of the scullery is a coal house under the stairs and a pantry, lighted and ventilated from the outside. There is also abutting the back wall an exterior W.C., with pedestal sanitary pan and flush tank. On the first floor are two bedrooms, one at the front, 13-ft. 3-in. by 12-ft. with hanging cupboard, and another at the back, 13-ft. 3-in. by 8-ft. 6-in. On the floor above are two other bedrooms of a similar size and disposition. Every room has a fire-place.

The smallest sized houses, of which there are 32, provide exactly the same accommodation on the ground and first floors as the above, but there is no second chamber floor.

Four of the houses in the centre of the new street (2 on each side) have, on the first floor an additional bedroom to the last-mentioned, i.e., 3 in all, the arrangement of these on the ground floor being similar to that of the others.

The height of all rooms is 8ft. 6in. The lowest floor is kept at a level of about 9 inches above that of the highest recorded flood, and the whole area under floors is covered by a layer of concrete 6 inches thick.

All exterior and party walls are 9 inches thick and of brickwork of local bricks faced with red Shortwood facing bricks. The roofs front and back are covered with slating.

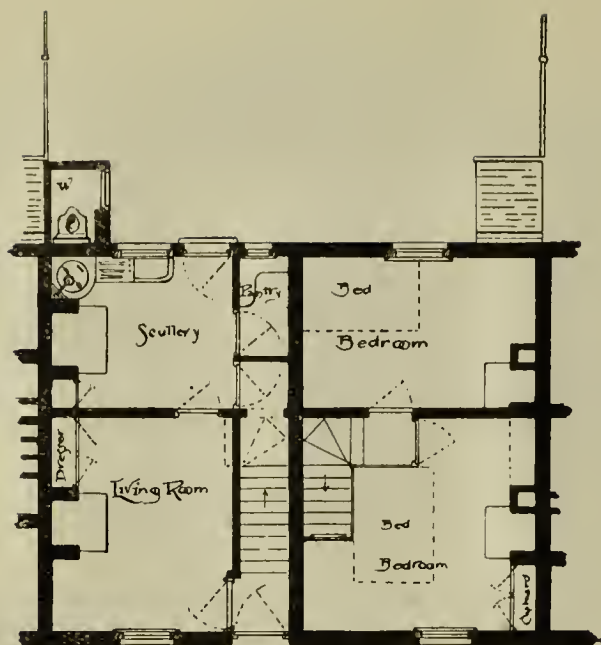
Secondary access is provided to all houses for the removal of house refuse, etc.

All drains are entirely external and are disconnected from the sewer.

It may be interesting to note the following dates in connection with the Dolemeads Improvement Scheme.

Scheme approved by the Bath City Council	...	Sept. 20th, 1898
Draft and Plans sent to the Local Government Board	...	Nov. 18th, 1898
Local Government Board Inquiry	...	Feb. 3rd, 1899
L.G.B. approval to Scheme subject to alterations	...	May 12th, 1899
Committee submit new proposals to L.G.B.	...	May 30th, 1899
L.G.B. approval subject to further alterations	...	July 28th, 1899
Committee approve scheme as altered by L.G.B.	...	Aug. 2nd, 1899
City Council confirms Committee decision	...	Sept. 12th, 1899
L.G.B. sanction a loan for £10,500	...	Dec., 1899
City Surveyor raises the site 13 feet and puts in foundations	...	
Mr. Toogood's tender for erecting houses accepted	...	July 17th, 1900
Ceremony declaring 16 houses fit for occupation	...	June 24th, 1901

A scheme for improving Lampard's Buildings, and the courts which lead into it, has also received attention from the Committee. On the requisition of 12 householders I made an official representation, condemning as an unhealthy area 41 houses, with a population of about 200 persons. The Clerk reported as to procedure to be adopted by the



GROUND PLAN FIRST FLOOR PLAN



CROSS SECTION

Urban Sanitary Authority upon a representation made by the Medical Officer of Health, under Part 1, Section 5, of the Housing of the Working Classes Act, 1890. The Committee visited the locality and a small sub-committee was appointed to bring up a report, and Mr. Fortune has submitted a scheme showing how the property can be dealt with. That portion of Lampard's Buildings which it is not intended to demolish has already been dealt with and considerably improved by serving notices under the 1875 Public Health Act, and the City of Bath Act, 1855.

"PARTICULARS OF THE LAMPARD'S BUILDINGS SCHEME.

"Acreage of the area affected-	-	0·8202 acre.
"Number of persons of the working		
"class who will be displaced	-	189 persons.
"Number for whom dwelling accom-		
"modation is to be provided	-	176 persons.
"Place at which dwelling accommo-		
"dation is to be provided	-	On the sites of the unhealthy
		"dwellings within the area and
		"upon the site of Nos. 24, 25,
		"26 and 27, Lampard's Build-
		"ings, No. 25, Ballance Street,
		"Morford Brewery yard, be-
		"longing to No. 1, Belvedere
		"Place, adjoining the said area.'

Official Representation of M.O.H. to City Council	..	Oct. 14th, 1898
Report by the Clerk	... ..	Nov. 7th, 1898
Report by the City Surveyor, with estimates	... ..	Sept. 21st, 1899
Local Government Board Inquiry	... ..	Feb. 12th, 1900
Provisional Order confirming the Scheme...	... ..	May 15th, 1900

So far this may be looked upon as a very good record of work done under Part 1 of this Act, but there has been a good deal of delay in coming to a settlement with the various owners of property, and up to the present time, March 17th, 1902, no building operations had begun, but the houses in Viner's Court had been demolished.

Plate V shows the front elevation and ground floor plan of a three-roomed double tenement house.

Sewerage and Drainage: its sufficiency in all parts of the District—Condition of Sewers and House Drains— Method or Methods of Disposal of Sewage—Localities where Improvements are needed—Excrement Disposal; System in vogue; Defects if any.

The sewerage system of Bath dates back at least to the year 1711, when a large, well-built sewer, in which a man could walk upright, was constructed, and the disposal of excrement is now almost exclusively by water carriage. In a small district outside the general system of sewerage there are a few cesspits and some earth closets. The sewers may be said to be unventilated—that is to say there are

THREE ROOMED DOUBLE TENEMENT

HOUSES

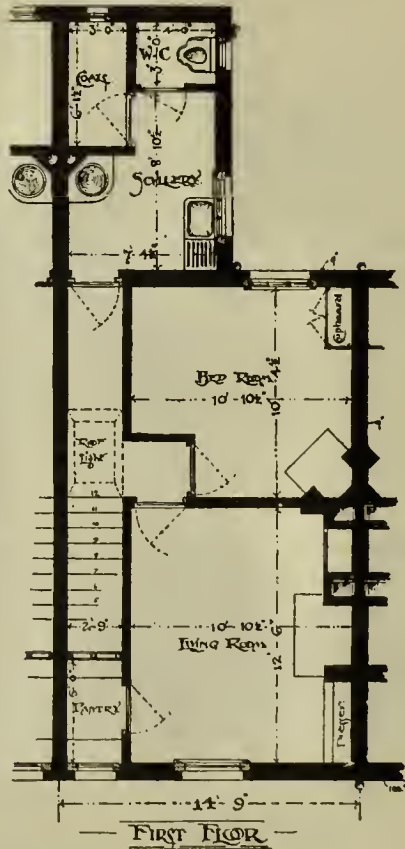
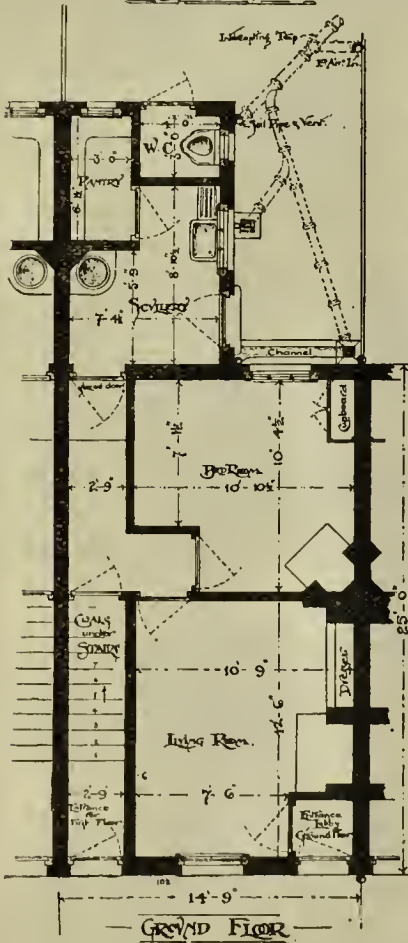
(TYPE C)

Lampard's Buildings,
Bath.



SCALE - FEET

FRONT ELEVATION



no objectionable openings into the streets, but on the high levels there are about 30 shafts, some 30 feet high, to ventilate sewers in those districts. As far as I can ascertain sewer gas is never forced into the houses where proper water seals are used, and I consider the system adopted in Bath much better than that in vogue in London, where open gratings communicating with the sewer are often placed in the middle of the street. As regards house drains, stoneware pipes are the rule. Occasionally stone drains are found, but these are invariably at once removed and modern connection made. Similarly with water-closets—they must be of modern construction; when pan-closets are found a notice is at once served to replace these by syphon closets with flushing cistern.

The sewers lead directly into the river, and the untreated sewage is discharged below the water-level. There is a strong sentimental objection to this mode of disposal, but as far as I can ascertain no evil result follows. It must be remembered that the volume of river water is at least 100 times that of the sewage; also that the hot mineral water from the Roman Baths is at least half the volume of the sewage, and contains carbonate of iron in about the proper quantity to oxidize the sewage. There are numerous weirs, which assist its action in this respect, and fish seem to thrive well in the river. Various schemes of dealing with the sewage have been proposed, and land has been purchased at a cost of £11,000, but a complete system of dealing with the sewage would probably cost over £100,000 (Mr. Radford's estimate for Bath alone was £94,120), and it is not to be wondered at that the City Council hesitate to embark on a scheme of this magnitude in the present transitional state of our knowledge as to the best method. I think, however, that the river might be much improved if the banks were paved, and the same attention given to the river as to a roadway; a couple of scavengers could probably do a good deal in this direction.

Removal and Disposal of House Refuse—Whether by Public Scavenger or Occupiers—Frequency and Method.

The removal of house refuse is under the control of the City Surveyor, and as far as I can ascertain is generally well done. In some streets a daily collection is made, but in outlying districts the carts call once a week. We have no power to insist upon the provision of movable sanitary ash bins; any old box is considered good enough to receive house refuse, and even in some of our principal streets these are placed in the early morning upon the pavements ready for the carts to collect. The "dust carts" are modern and properly covered, but in transferring to the carts quantities of dust and paper are blown into the roadway. It would be a great advantage if the householders would provide proper receptacles, and if these were removed on trollies to the Destructor and then brought back to the house after emptying. The refuse is disposed of by combustion in a Destructor situated in the Upper Bristol Road. Numerous complaints have been made concerning the Destructor, and from time

to time I have had to report on the alleged nuisance. In my opinion the complaints have been out of all proportion to the nuisance, but there can be no doubt that at times unpleasant vapours from the chimney, the summit of which is on the same level as the Royal Crescent, have been blown down into the city; but to ascribe all bad odours, which come from the south-west to the Destructor is, I think, unjust. A conjoint report by the Public Analyst, the Inspector of Nuisances, and myself was made in October, 1900. The attention of the builders of the Destructor was called to these reports, and an engineer, Mr. Charles Jones, of Ealing, was subsequently asked to make a report. He confirmed the reports previously made, but advised as a remedy air-forced draught instead of steam-forced draught, which I recommended. The builders of the Destructor were requested to give an estimate in accordance with the suggestion made by Mr. Jones. Their specification was dated February 19th, 1901, for the sum of £1,784, including a crematory, £269 10s. It was decided not to have the cremator, but the rest of the work was carried out in the last quarter of the year. The Destructor is still in the contractors' hands, and it is too early to say what the results will be.

Water Supply of the District or its several parts—Its Source, Nature, Sufficiency, Wholesomeness and Freedom from Pollution.

Bath has an exceptionally good water supply derived from numerous springs. The upper springs are thrown out by the clays of the Fuller's Earth underlying the Great or Bath Oolite; these springs are superficial, and responding readily to the rainfall vary greatly in their yield. The lower springs issue from the Upper Lias or Midford Sands, and are more constant. The progress of the Bath Waterworks was described in the 1896 Report by Mr. Gilby, C.E. Since then the Monkwoods Reservoir of 51,000,000 gallons capacity has been taken into use, which, with the Batheaston Reservoir of 9,000,000 gallons, and the smaller service Reservoirs of Bathwick, Charlcombe and Lansdown, with an aggregate capacity of over 500,000 gallons, will probably ensure a constant service in all ordinary years.

The catchment area is chiefly pasture land, but there are a few fields under cultivation and some scattered dwellings.

The latest analyses of our water supplies are found in the Report of the "Lancet" Special Commissioner on the sanitary condition of Bath, and the following is a reprint from the "Lancet," October 14, 1899:—

The Analyses of the Town Water Supplies.

"The two chief sources of water supply to Bath are, as has already been pointed out by our Sanitary Commissioner, at Batheaston and Monkwood. These conjoint supplies are quite adequate for the service of the city, and it remains to make inquiry into the quality

of the supply thus available. Accordingly our Laboratory Commissioners in association with our Sanitary Commissioner inspected the sources of supply and secured samples at both reservoirs, as well as samples also of the water representing it in the condition in which it is delivered from the services in the City of Bath some miles away. The following are the results in grains per gallon:—

BATHEASTON WATER SUPPLY.

		Water from the reservoir.		Water from the town main.
Free ammonia	...	0·0019	...	0·0010
Albuminoid ammonia	...	0·0010	...	0·0010
Nitrogen in nitrates	...	0·182	...	0·175
Nitrogen in nitrites	...	Nil	...	Nil
Chlorine in chlorides	...	1·12	...	1·15
Oxygen absorbed	...	Nil	...	Nil
Temporary hardness	...	7·81	...	8·06
Permanent	„	12·19	...	11·20
Total	„	20·00	...	19·26
Total solids	„	23·52	...	26·88
Phosphates	„	Nil	...	Nil
Behaviour on ignition of solids		Satisfactory	...	Satisfactory
Colour	...	Pale Green	...	Pale Green
Smell	...	None	...	None
Taste	...	{ Fresh and palatable	...	Fresh and palatable
Heavy metals	...		...	None

MONKSWOOD WATER SUPPLY.

		Water from the reservoir.		Water from the town main.
Free ammonia	...	0·0028	...	0·0028
Albuminoid ammonia	...	0·0014	...	0·0314
Nitrogen in nitrates	...	0·161	...	0·175
Nitrogen in nitrites	...	Nil	...	Nil
Chlorine in chlorides	...	0·945	...	0·945
Oxygen absorbed	...	Nil	...	Nil
Temporary hardness	...	5·00	...	8·60
Permanent	„	10·50	...	10·40
Total	„	15·50	...	19·00
Total Solids	...	20·72	...	24·08
Phosphates	...	Nil	...	Nil
Behaviour on ignition of solids		Satisfactory	...	Satisfactory
Colour	...	Pale Green	...	Pale Green
Smell	...	None	...	None
Taste	...	{ Fresh and palatable	...	Fresh and palatable
Heavy Metals	...		...	None

These analyses present satisfactory features in conjunction with the results of the inspection of the sources of supply and their environment. There is little difference between the composition of

the Batheaston supply and the Monkswood supply. Both are chalky and both give evidence of being free from any impurity, organised or unorganised; indeed, the character of the water supply of Bath is excellent. It is not only abundant, but of admirable purity. The analyses show slight and negligible differences between the water obtained direct from the reservoirs and from the city service main, differences which are only due to a slight variation in the mineral matters which is easily explicable. The important deduction, however, to be drawn from these comparative analyses is that the system of service supply is free from reproach and that the pure waters at the reservoirs are delivered unchanged and in excellent quality to the consumer."

I have from time to time examined the water at the springs bacteriologically, as first described in the Annual Report for 1897, page 9, and it is worthy of note that the water coming from the springs even in times of drought is practically sterile until exposed to the air; the only organism I have been able to recognise in the water as it flows from the gauging trough is the fluorescent bacillus, which liquefies gelatine; this is found in most waters, and is perfectly harmless.

As to the sufficiency of the supply, some doubt must be entertained. During a severe drought constant service had to be suspended from November 12th to December 13th. The weekly flow of the Monkwoods springs—some of which are deep and some shallow—is shown in the meteorological chart on page 48, in tens of millions of gallons; the rainfall for the same period is also shown for central Bath and for Monkwoods. I have to thank Mr. Mitchell, C.E., and Mr. Gilby, C.E., F.R.Met.Soc., for giving me information and facilities for inspection and examination.

The Bath Waterworks have been the most successful undertaking carried out by the Corporation, and a sum of from £2,500 to £3,300 has been yearly devoted to the relief of the city rate. It is, therefore, probable that the proposals for additional works will be speedily approved. When these are completed we shall have not only a pure supply, but one the sufficiency of which shall be maintained in all seasons.

There still remain a few private springs and wells. The springs generally furnish water of excellent quality, but the wells are generally doubtful, and as they come under observation are usually condemned and closed. The High Level Water Company supply a small district, including the Bath Workhouse and the Statutory Hospital. I was requested to report on the quality of the water supplied by this company early in the year, and was courteously permitted to inspect the works and take samples. I found that there was a supply of spring water of good quality, but that some surface water was admitted to the reservoir, and that defective filters were in use. I am informed that improvements have since been made, and during the drought arrangements were made to take water from this Company to supplement the Corporation supply.

Places over which the Council have supervision, i.e., Lodging-houses, Slaughter-houses, Bakehouses, Dairies, Cowsheds and Milkshops, Factories and Workshops, and Offensive Trades.

There are seven registered common lodging-houses, all of them situated in Avon Street. They afford accommodation for 164 persons. They are inspected weekly by the Assistant Inspector and occasionally by the Inspector of Nuisances and myself. As a rule they are clean and well kept, and I wish we could get the same standard of cleanliness in tenement houses generally. This will not be possible until inspection is more systematically and more frequently carried out. Notwithstanding the efforts of the keepers some of the common lodging-houses are structurally unfit for the purpose for which they are used, and it will be necessary to condemn them before many years are past.

With regard to slaughter-houses, there are 42 registered slaughter-houses and 28 in actual use. A large slaughter-house for pigs is being built in the centre of the city, and although no expense will be spared to prevent a nuisance, I cannot but regard it as unfortunate that so central a position should have been selected and sanctioned. I can only repeat what I have written so frequently—without a public slaughter-house and meat-depot effective control of the meat supply or of the methods of slaughtering is impracticable.

Bakehouses.

New duties of great importance are placed by Sec. 101 of the Factory and Workshops Act, 1901, on the Urban Sanitary Authority in regard to underground bakehouses. The Act provides that after January 1st, 1904—that is, after a period of two years from the coming into force of the Act—it will not be lawful to use any underground bakehouse (whenever established) unless the Council are satisfied that it is suitable for the purpose in regard to construction, light, ventilation, and in all other respects, and have given it a certificate of suitability. This provision will apply to all Bakehouses, whether wholesale or retail.

Every bakehouse will be deemed an underground bakehouse if any room used for baking, or for any purpose incidental thereto, is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room.

An underground bakehouse used in contravention of these provisions will be deemed to be a workshop not kept in conformity with the Act.

There are 70 bakehouses in Bath, and 20 are underground bakehouses within the meaning of the Act. Probably quite one half the bread supplied in Bath is baked in an underground bakehouse. Under the Act which came into force on January 1st, 1896, considerable

alterations were made in most of the bakehouses in Bath. In only one case was it necessary to appeal to the Magistrates. The bakers generally seemed anxious to conform to the law, and heavy expenses were incurred. I am, therefore, very sorry to have to report many of these bakehouses as in my opinion unsuitable in regard to construction, light, ventilation, and in other respects unfit for men to work twelve hours a day, and I do not think any alterations can make them fit. It will be for the Sanitary Committee to decide whether any underground bakehouses shall be permitted to continue.

Dairies and Milkshops.

"INSPECTOR'S REPORT.

Number of Registered Cowkeepers	11
Number of Registered Dairymen and Purveyors of Milk	85
Number Registered during 1901	4
Discontinued selling	6
<hr/>	
Total number on register December 31st, 1901 ...	91

Number of inspections made, 1901, 809. This number does not include inspections made by the Medical Officer of Health or the Sanitary Inspector.

F. W. KELWAY."

Dairies and milkshops are generally well arranged and well kept, and the large dealers take every possible precaution to safeguard the milk; but some of the small dealers—general shop-keepers, who sell a few pints of milk daily—ought not to be permitted to keep this commodity for sale under the conditions which obtain in their shops, but it appears the Urban Authority must register every dealer who applies for registration, and unless there is some structural sanitary defects in the premises the sale of milk cannot be prevented.

As regards the cowsheds, there are eleven registered cow-keepers, and most of the cowsheds are excellent, but much difficulty is experienced in getting the yards kept clean and free from manure. I have no doubt our urban farms will compare very favourably with those in the rural district, which supply the chief portion of the milk, and the Urban Authority ought to have the power to exercise supervision over the farms, cowsheds, etc., from where milk is sent into the city. Some Authorities arrange to have this done; for example, I quote the following from the Annual Report of the Medical Officer of Health for Torquay for 1901:—

"An invitation was sent to every milk dealer who procured his supplies from outside the borough, offering to inspect the farms he was associated with. Where the farms, water, etc., were found to be satisfactory, their names and location would be published in conjunction with the milk dealers, so that the public would be able to know what milk was produced under favourable circumstances, and

what was not. Of course, if a farmer or dealer refused to co-operate in the movement, the public would come to the conclusion that there was something to hide, and consequently unsatisfactory.

The milk sellers, with one exception, at once saw the advantage of an occasional inspection, and persuaded the farmers to allow me to visit their places.

The following are the proposals submitted to the farmers:—

BOROUGH OF TORQUAY.

In order to carry the accompanying regulations into effect, it is proposed:—

- 1.—To send circulars to all known suppliers of milk to Torquay, together with a copy of the regulations, and invite them to notify the Medical Officer of Health of their willingness to comply.
- 2.—The Medical Officer of Health or a Sanitary Inspector would then visit the farms, enter the farm on the register if found up to the required standard; or if alterations or improvements required, to suggest same, and when carried out, to register it.
- 3.—The list of dairy farmers thus registered will be published every six months, either by being advertised, or printed on hand-bills, to be distributed to consumers, or otherwise exhibited.
- 4.—Registered dairy farmers to be permitted to advertise in any way they may think proper the fact that their farms have been approved of by the Sanitary Committee.
- 5.—After farms have been registered, the Medical Officer of Health or his Inspector will visit the same occasionally, and if it be found that a licensee has failed to comply with either of the requirements, the same to be reported to the Committee, to be dealt with according to the circumstances of the case.
- 6.—If the Committee should decide to remove any particular farm from the register, the fact to be made publicly known to the consumers of the milk.
- 7.—The foregoing proposals to be carried out with a due regard to the small dairy farmer, so that whilst the health of the public may be safeguarded, the circumstances of the small dairy farmer may not be overlooked.

The Medical Officer of Health to be satisfied as to the purity of the water used on the dairy farm.

Shippens to be kept in accordance with the provisions of the Dairies, Cowsheds, and Milkshops Order, 1899, as to ventilation, cubic space, drainage, and water supply.

On next page are the regulations referred to.—

BOROUGH OF TORQUAY.

Inspection of Dairy Farms.

Any Dairy Farmer supplying Milk, etc., to the Inhabitants of Torquay, will undertake to carry out the following Regulations:—

- 1.—In the event of an employee or any person residing on or off the farm premises becoming ill, he or she is to be immediately isolated and certificate of Medical Practitioner at once obtained as to nature of illness and forwarded to the Medical Officer of Health, Torquay. Persons suffering from any Infectious or Contagious Disease to be at once removed.
- 2.—Milk carts never to be used for the carriage of dung, or any article of an offensive character.
- 3.—Milk carts, cans, dairy and all other utensils in connection with the business of the dairy to be kept perfectly clean.
- 4.—No milk to be stored or scalded in a dwelling-room.
- 5.—No milk for consumption to be taken from cows after calving until a proper period, viz.:—Seven days—shall have elapsed.
- 6.—No milk to be supplied from cows whose udders are not in a perfectly healthy condition, and, if suspicious, notification to be at once sent to the Medical Officer of Health.
- 7.—Absolute cleanliness to be observed by the persons engaged in milking.
- 8.—The shippens and other premises to be kept properly lime-washed at frequent intervals, and premises generally kept thoroughly clean and wholesome; and no heap of manure is to be in such proximity to the dairy as will in the opinion of the Medical Officer of Health be liable to taint the milk.

Factories and Workshops and Workplaces.

The general supervision of factories is under His Majesty's Inspector of Factories, but matters are frequently referred to the Medical Officer of Health, and I have had ample opportunity for inspecting most of the factories in Bath. Many of them are models, and it is a pleasure to visit them to see the general good order and cleanliness. Workshops and workplaces are much more numerous than factories. The Act of 1901 places a new duty on every Council to keep a register of all workshops situate within its district. At present there is no such register, although the books were provided in accordance with the Act of 1890 there were only nineteen entries at the end of the year 1901, but much work had been done in the usual routine when attending to complaints of nuisance. Now for the first time the powers of a factory inspector are given to the officers of the Urban Sanitary Authority as regards workshops and workplaces. There are few offensive trades carried on in Bath, and only on the small scale; therefore they are easily supervised and kept in order.

CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1901.

(January 1st to December 31st).

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.										CASES NOTIFIED IN EACH LOCALITY.					NUMBER OF CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.						
	At Ages—Years.																					
	Under 1.			1 to 5.			5 to 15.			15 to 25.			25 to 65.									
	At all Ages.	M	F	M	F	M	F	M	F	M	F	M	F	65 and up-wds.		Walcot.	R. U. H.	Lyn. Wild.	Work-house.	Bathwick	Urban.	Rural.
Small-pox ..																						
Cholera ..	46	1	1	7	10	7	10	3	2	5						33	2	7	2	2	1	3
Diphtheria ..																						
Membranous croup																						
Erysipelas ..	44	1						2	2	9	14	3	11			21	2	9	9	3		
Scarlet fever ..	126			17	22	40	36	3	1	2	5					84	1	32	3	6	90	31
Typhus fever ..																						
Enteric fever ..	9					2	1	1	2	3						4	2	2		1		
Relapsing fever ..																						
Continued fever ..																						
Puerperal fever ..																						
Plague ..																						
Totals ..	225	2	1	24	34	49	47	5	7	15	27	3	11			142	7	50	14	12		
Persons ..		3		58		96		12		42		14									112	34

ISOLATION HOSPITAL, CLAVERTON DOWN.

Medical Attendant—E. FIELD, M.D. (Aberd.), M.R.C.S., L.R.C.P.

Matron—Miss JOSEPHINE H. WHITTAKER.

Weekly Notifications of Infectious Disease for the year 1901.

WEEK.		Smal Pox.	Scarlet Fever.	Diphtheria	Typhoid Fever.	Continued Fever	Puerperal Fever.	Erysipelas.	Total.
No.	Date of Ending.								
1	January 5 ..	..	3	1	..	..	..	1	5
2	12 ..	..	5	1	..	..	..	1	7
3	19 ..	..	1	..	..	..	..	1	2
4	26 ..	..	2	..	..	..	..	..	2
5	February 2 ..	..	2	..	..	..	..	..	2
6	9 ..	..	2	1	..	..	..	..	3
7	16 ..	..	1	2	1	..	..	1	5
8	23 ..	..	1	1	..	..	..	3	6
9	March 2 ..	..	1	..	..	..	..	..	1
10	9 ..	..	1	4	..	..	..	1	6
11	16 ..	..	2	3	..	..	..	3	8
12	23 ..	..	1	..	..	..	..	..	1
13	30 ..	..	5	1	..	..	..	1	7
14	April 6 ..	..	..	2	..	..	..	2	4
15	13 ..	..	1	..	1	..	..	1	3
16	20 ..	..	1	..	..	..	..	1	2
17	27 ..	..	1	..	..	..	..	1	2
18	May 4 ..	..	1	1	..	..	..	..	2
19	11 ..	..	2	..	..	..	..	..	2
20	18 ..	..	4	2	..	..	..	1	7
21	25 ..	..	..	1	..	..	..	..	1
22	June 1 ..	..	3	4	..	..	..	2	9
23	8 ..	..	..	3	..	..	..	..	3
24	15 ..	..	5	..	..	..	..	..	5
25	22 ..	..	2	3	1	..	..	..	6
26	29 ..	..	6	..	..	..	..	2	8
27	July 6 ..	..	..	1	..	..	..	1	2
28	13 ..	..	2	2	1	..	..	..	3
29	20 ..	..	3	..	1	..	..	2	6
30	27 ..	..	..	..	..	..	..	..	Nil.
31	August 3 ..	..	2	..	..	..	..	1	3
32	10 ..	..	..	..	..	..	..	..	Nil.
33	17 ..	..	..	1	1	..	..	1	3
34	24 ..	..	..	..	1	..	..	..	1
35	31 ..	..	..	3	..	..	..	..	3
36	Sept. 7 ..	..	4	1	..	..	..	..	5
37	14 ..	..	6	..	..	..	..	1	7
38	21 ..	..	5	..	..	..	..	2	7
39	28 ..	..	2	..	1	..	..	1	4
40	October 5 ..	..	3	..	..	..	..	..	3
41	12 ..	..	4	..	..	..	..	3	7
42	19 ..	..	7	..	..	..	..	..	7
43	26 ..	..	3	..	1	..	..	1	5
44	Novmb. 2 ..	..	2	..	..	..	..	..	2
45	9 ..	..	4	..	..	..	..	2	6
46	16 ..	..	5	..	..	..	..	1	6
47	23 ..	..	..	1	..	..	..	1	2
48	30 ..	..	5	1	..	..	..	..	6
49	Decem. 7 ..	..	4	..	..	..	..	2	6
50	14 ..	..	3	1	..	..	..	2	6
51	21 ..	..	4	3	..	..	..	1	8
52	28 ..	..	6	..	..	..	..	..	6
Totals ..		..	125	45	9	..	..	44	223

Nuisances : Proceedings for their abatement, and remaining unabated.

The report of the Inspector of Nuisances will be found on page 59.

Methods of dealing with Infectious Diseases—Notification—Isolation Hospital Accommodation and its Sufficiency—Disinfection.

Notification.

The Notification Act of 1889 was at once adopted in Bath, and came into force on March 10, 1890, but prior to that time there had been a system of voluntary notification, and our Isolation Hospital was erected in 1876, and from that date cases of small-pox, scarlet fever, and diphtheria coming to the knowledge of the Medical Officer of Health have been removed to hospital unless proper isolation could be secured at home.

During 1901 only one case of wilful exposure of an infected person came to my knowledge. A variety artiste visited Bath while still desquamating after scarlet fever. I notified her as suffering from scarlet fever, and she was removed to the Statutory Hospital. On her discharge proceedings were taken, guilty knowledge was proved, and she was fined £5 and costs or fourteen days.

From November 24, 1900, phthisis was included among those diseases which might be notified on the same terms as other infectious diseases, but notification of this disease is not obligatory, and in 1901 only 22 cases, out of a probable 200 total cases, or 100 suitable cases, were notified.

During the past year a system of school notification has been adopted. Every elementary school is supplied with a book of stamped forms, and the teachers are asked to notify all cases of infectious disease, using a separate form for each disease. Each certificate has lines ruled for ten cases, the name, age, and address of the pupil being required, together with the cause of absence from school. The system seems likely to be useful. Managers and teachers of schools are very ready to assist the Sanitary Authority. It is, however, quite impossible for us to follow up the work as thoroughly as I could wish; we have in many cases to be content with sending leaflets, where a visit from an inspector might furnish useful information.

The Bath Statutory Hospital, Claverton Down.

Last year I gave a description of the hospital, which was taken from a report by the late Superintendent. An error inadvertently escaped my notice—the cubic space allowed for each patient was stated to be 540 cubic feet; it should have been 1,080, as the dimensions given are those of a ward of 16 beds, not for a pavilion of 32 beds. During the past year an addition has been made to the Stone Building, providing six new rooms. The rooms are of the

type of ordinary dwelling rooms, and no special precautions have been taken to prevent the collection of infectious dust. The new building may, however, prove useful as affording accommodation for nurses. Each nurse should have a separate room: with our present knowledge it is wrong to permit nurses attending persons suffering from diphtheria to sleep in the same room as a nurse attending scarlet fever cases.

I have repeatedly pointed out the weak places in our Statutory Hospital. The wards are too large, and cases cannot be properly classified. Convalescent patients are exposed to re-infection from those recently admitted, and though they may not themselves suffer a second time from the disease they frequently carry infection to others; the mischief done in this way is not easily estimated, as only "return cases" from the same family are noted. We have no observation wards for doubtful cases, no clearing houses, and no steam disinfectors at the hospital. Although scarlet fever cases are retained longer than at most hospitals—the average last year was 56 days in hospital—we get many return cases; some of these can be traced to patients who have been sent out while still in an infectious condition; others to the infection of persons going to fetch them from the hospital, and I cannot but regard the general arrangement as very unsatisfactory. We have made no provision for the treatment of small-pox, notwithstanding the severe lessons of the past, as shown by the following figures for epidemics recorded during the past century:—

SMALL-POX EPIDEMICS IN BATH.

		Cases.		Deaths.
1837	...	—	...	172
1838	...	—	...	19
1839	...	—	...	73
1840	...	—	...	97
1858	...	102	...	9
1865	...	—	...	805 (sic.)
1879	...	(Workhouse 177)	...	41
1893	...	15	...	3
1894	...	1	..	0

From 1894 to December 31, 1901, there has been no case of small-pox notified in Bath. During the Gloucester epidemic we escaped entirely.

It seems almost an insult to the intelligence of any one to argue now in favour of vaccination as a protection against small-pox, but it may be well to state that complete protection is only given by vaccination, within the last eight years, by four insertions, covering a total space of at least a half inch square or one fourth of a square inch. The protection afforded by two or three insertions of vaccine is much more evanescent than that afforded by efficient vaccination in four places. The following statistics are conclusive evidence that vaccination, however imperfect, affords considerable immunity:—

The London Epidemic of Small-pox.

The following statistics of the numbers of attacks, deaths and fatalities of the epidemic, in cases, the results of which were complete, either by death or by recovery, and which occurred during the year 1901, are taken from a report by the Statistical Committee of the Metropolitan Asylums Board published in various London papers on January 13th, 1902.

SUMMARY.

	Attacks.		Deaths.		Fatality.
Vaccinated ...	760	...	108	...	14·21
Doubtful ...	63	...	41	...	65·08
Unvaccinated	194	..	98	...	50·52
<hr/>					
Total ...	1017	...	247	mean 24·28 p.c.	

RE-VACCINATION.

After referring to a few cases of adults who from their position or occupation were especially liable to the infection of small-pox and who, not having been re-vaccinated, as they ought to have been, caught the disease, the Report proceeds to draw attention to the experience of the Managers of the Metropolitan Asylums, at their small-pox hospitals and in the ambulances, for many years past. In both of these services re-vaccination was, as a rule, enforced on engagement.

AS TO THE HOSPITAL STAFF.

They proceed to say that of 2,198 persons employed at the small-pox hospitals, between 1884 and 1900 inclusive, in which period 17,900 small-pox cases were received into the hospitals, only 17 members of the staff contracted small-pox, of whom 13 were not re-vaccinated until after they had rejoined the ship, and 4 were workmen who had escaped medical observation.

During the past year a large number of new staff had joined the ships and the Gore Farm Hospital, but not one case of small-pox had occurred among them.

Not one of the hospital staff had ever died from small-pox, and not one had suffered from the disease for the last eight years.

AS TO THE AMBULANCE STAFF.

From the year 1881 to the end of 1901 there had been employed on the ambulance service of the Board 1,282 persons. Four of them contracted small-pox, of whom one escaped vaccination when appointed; he died. One was unsuccessfully re-vaccinated on her joining the service, and the operation was not repeated; she died. The other two had been re-vaccinated and recovered.

FURTHER CONFIRMATION OF THE EXPERIENCE OF THE EPIDEMIC.

It must not be supposed that this first instalment of the experience of London in the matter of small-pox and vaccination in this epidemic

presents any novelty to those who are familiar with that of previous epidemics of the disease in recent times. In proof of this statement it may be well to give the statistics of two of the most important recent epidemics: Gloucester, a town in which infant vaccination had been greatly neglected, and Middlesbrough, in which it had been well maintained.

GLOUCESTER EPIDEMIC, 1895-6.

Total Attacks, 1979.‡			Deaths, 434.		Fatality, 22·2.		
<i>Vaccinated (in infancy).</i>				<i>Unvaccinated.</i>			
<i>Age.</i>	<i>Attacks.</i>	<i>Deaths.</i>	<i>Fatality per cent.</i>		<i>Attacks.</i>	<i>Deaths.</i>	<i>Fatality per cent.</i>
Under 10	26*	1†	3·8	...	680	279	41·0
10-20	263	5	1·9	...	48	14	29·1
20-30	373	29	7·7	...	17	8	47·0
30 and over	549	85	15·4	...	23	13	56·5
Total	1211	120	mean 9·9	...	761	314	mean 40·9

MIDDLESBROUGH EPIDEMIC, 1898.

Total Attacks, 1411.			Total Deaths, 202.		Fatality, 14.2.		
<i>Vaccinated (in infancy).</i>				<i>Unvaccinated.</i>			
<i>Age.</i>	<i>Attacks.</i>	<i>Deaths.</i>	<i>Fatality per cent.</i>		<i>Attacks.</i>	<i>Deaths.</i>	<i>Fatality per cent.</i>
Under 10	43	0	0	...	62	29	46.5
10-15	121	2	1.6	...	21	4	19.0
15-25	437	22	5.0	...	42	16	38.0
25 and over	612	84	13.5	...	73	45	61.6
Total	1213	108	mean 8.9		198	94	mean 47.4

* 25 out of this 26 were over 5 years of age.

† This was a case of very doubtful vaccination. Of course, if it be eliminated the fatality under 10 years becomes nil, as it was at Middlesbrough.

‡ This number refers to the City of Gloucester only, within the then Municipal boundary. There were about 80 more cases in the suburbs, since then mostly included in the City. The age groups in the statistics of this epidemic and that of Middlesbrough do not precisely correspond with the more detailed arrangement of the London cases, but they are sufficiently alike to allow of the fatalities of the three epidemic being fairly compared.

LESSONS.—1. Good vaccination in infancy protects up to about 10 years of age, with a high degree of probability, against attack of small-pox, and almost with certainty against death.

2. Even up to middle life it continues to give some protection against attack, and still more so against death, though in a more rapidly decreasing degree as age advances.

3. Re-vaccination, at about 10 years of age, is necessary in order to maintain protection against attack from small-pox, and should certainly be repeated after an interval of 10 years at the outside in

the case of imminent danger from the actual neighbourhood of the disease.

4. The protection given by efficient vaccination is comparable for a time with that given by an attack of small-pox, but is not so lasting.

Primary Vaccinations by Public Vaccinator, Bath,
1891—1900.

	Walcot.	Lyn.-Wid.	Bathwick.	Bath.	Twerton.	Batheaston
1891	427	216	45	688	305	166
1892	398	188	36	622	283	164
1893	394	215	49	658	294	172
1894	417	264	46	727	352	190
1895	403	266	59	728	344	177
1896	443	235	37	715	343	188
1897	321	176	42	539	303	169
1898	409	198	39	646	264	160
1899	394	264	43	701	268	142
1900	403	258	42	703	252	130
10 years	4009	2280	438	6727	3008	1658

Disinfection.

We are now well provided with modern appliances for disinfecting. The Washington Lyons Steam Disinfector continues to work satisfactorily; 2,119 articles have been disinfected by steam during the year. By a slight alteration of the pipes leading from the boiler we are able to use the vacuum chamber of the disinfector without heating the jacket, and we can introduce a spray of formalin, by a spray producer placed within the chamber, when breaking the vacuum. The method is the best we can use for books, but cannot be relied upon unless the infection was superficial. Rooms are disinfected with formalin applied as a spray, or fumigated with chlorine. Rooms which have been occupied by consumptive persons are disinfected free of cost; this probably the most important of all our disinfecting operations.

The free distribution of disinfectants, to cover casual bad odours, has been still further restricted, as I am convinced that, as ordinarily used, such "disinfectants" are worse than useless, the ratepayers are thus saved at least £200 a year, as may be seen by consulting the Treasurer's Abstracts, while the public health does not suffer in any way. Under special circumstances, such as home nursed cases of typhoid fever, the free use of formalin, or of chloride of lime is recommended, and when necessary the chemicals are supplied free of cost.

Articles Disinfected by Steam during the Year 1901.

Articles.	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Mattresses	15	3	5	Closed during Alterations.	23
Beds	4	3	..		7
Bolsters	16	7	2		25
Pillows	34	20	12		66
Blankets	40	12	11		63
Sheets	22	14	9		45
Quilts	19	4	2		25
Wraps	3	3	..		6
Cushions	4	1	..		5
Towels .. ..	..	6	10		16
Articles of Clothing ..	35	35	63		133
Miscellaneous	9	21	2		32
From Statutory Hospital— Articles of Clothing ..	551	511	593	18	1673
Total	752	640	709	18	2119

The Public Institutions of Bath.

Bath is exceptionally well provided with public institutions, and it is obvious that these must have an important bearing upon the sanitary condition of Bath. More than one-fifth of all deaths take place in one or another of these institutions. At first sight this may surprise many, but on reference to statistics for other towns we find that in London one-third of all deaths occur in public institutions, and in the thirty-three great towns the average is nearly one-fourth of all deaths. In other towns of about the same population as Bath the proportion of deaths in public institutions to total deaths is usually less than in Bath. Thus in Exeter the percentage is about 15; Devonport, 13; Gloucester, 11; and Cheltenham, 17. It is certainly a great advantage to the populace to have well-supported and well-managed public institutions in which they can be treated. The chances of recovery from illness are far greater in a public institution, where everything is especially arranged for the convenience of the sick, than in private houses, where the best arrangements are mere makeshifts. As education advances these facts are becoming widely known, and the sphere of usefulness of many hospitals is felt to be sadly limited by financial considerations.

The Royal United Hospital

contains 140 beds, and includes a special ward for sick children. It is centrally situated in among a population who need its help. It receives patients from twenty miles east of Bath. In 1901 the

number of in-patients admitted was 611 medical and 710 surgical, and there were 84 deaths. The number of medical out-patients was 4,002; the surgical and dental numbered 3,992; while 245 out-patients were visited at their own homes, making a total of 8,239 out-patients. The total number of patients was 9,560.

The income of the Hospital from funds and property amounted to £6,197, and the total expenditure to £8,369, which was defrayed by casual receipts from annual subscriptions, donations, collections in churches, chapels and workshops, leaving an adverse balance of £3,276. The estimated amount required yearly from voluntary sources is £6,000, and unless more liberal support is accorded many of the beds must remain empty.

Notwithstanding the unsatisfactory financial condition of the hospital, the managers have from time to time carried out numerous sanitary improvements. Modern operating theatres and a bacteriological laboratory have been provided, and by request I made during 1899, in conjunction with Mr. Craven, the Chief Sanitary Inspector, a very thorough examination of the building, as the result of which considerable alterations were made, and although the site is not an ideal one and space is somewhat limited, the general arrangements are excellent, and the institution deserves the confidence and support of the public.

The Royal Mineral Water Hospital

was founded in 1737, and incorporated in 1739 for gratuitously extending to the poor of the United Kingdom the benefits which the hot springs of Bath afford. Accommodation is provided for 172 patients, 102 males and 70 females. There are no out-patients. Application for admission, with the name, age, occupation and parish of the applicant, a brief history of the disease (comprising its origin, date, and present symptoms, and mentioning the parts principally affected), particularly stating whether any other disorder exists, must be sent to the Registrar of the Hospital, who will supply all needful papers. The Hospital is situate in the main thoroughfare of Bath, just within the ancient boundary of the city, and a portion of the old city wall flanks the pavement on the opposite side of the road. Accompanied by a commissioner from the "Lancet," I inspected this building during February, 1898, and we found the internal arrangements in a most unsatisfactory condition. A somewhat severe but thoroughly justifiable report appeared in the "Lancet" in October, 1898. The Board of Management caused further investigation to be made, and as the result have completely reconstructed the sanitary arrangements, and carried out many improvements in the wards. Partitions have been removed, cross ventilation and light obtained, while numerous mechanical ventilators have been placed in various parts of the building. I am informed that an expense of about £6,000 has been incurred, but this is money well spent. I have recently been invited to re-inspect, and it would be now difficult to suggest any improvement in the general sanitary arrangements; they are models of applied science. Special rooms are allotted for washing

and storing feeding utensils, and great improvements have been made in regard to meals; each meal is served separately. Formerly certain articles of food were set aside labelled for each patient, and this was not appetising; now the tables and meals are served as well as they can be. Of course some weak points remain; one or two of the smaller wards have yet to be dealt with, and there is no proper cloak room for men. Overcoats, etc., are hung in the day room, whereas they should be kept in rooms well lit and heated and ventilated more thoroughly than an ordinary living room. But, taking the Hospital as a whole, it is now worthy of the name it bears, and its usefulness will be greatly increased by the recent improvements.

The Bath Workhouse.

The Workhouse is near the south-west boundary of the city, at an elevation of about 540 feet above sea level, and 480 feet above the river Avon. It is a substantial and commodious building in the open country, fully exposed to winds from all points of the compass, and affords accommodation for some 600 inmates. The building is, as usual, under the regular supervision of the Inspectors of the Local Government Board. The nursing arrangements were recently criticised in the "British Medical Journal," and subsequently much improved. Owing to an epidemic of diarrhoea among the children during February, 1901, I was asked to meet the Inspectors of the Local Government Board and a small sub-committee appointed by the Guardians and I was instructed to prepare a report as to the causes of the epidemic, and I made my report on March 15th. By a singular coincidence I had been asked to report on the water supplied by the High Level Water Company only a few weeks before the outbreak of the epidemic, and a sample of water taken on February 11th was reported by Dr. Thresh, of Chelmsford, to contain the bacillus coli, and the spores of bacillus enteritidis sporogenes. On February 14th a girl aged 4 months, an inmate of the House since January 4th, was transferred from the nursery to the infirmary suffering from pneumonia and diarrhoea; she died on February 21st. During the following ten days 25 other children between the ages of 4 months and 4 years, were removed under somewhat similar circumstances. On February 28th a boy aged 19 weeks, who had been admitted from Monkton Combe on February 9th, died of pneumonia and diarrhoea. On the same day, February 23rd, a female, aged 85 years, died of influenza in another ward. All the 25 children suffered from persistent diarrhoea; there was no vomiting and very little collapse, but there was in nearly all continuous high fever and pneumonia or some inflammation of the lungs, but the fever was more continuous than that of pneumonia, the temperature charts being undistinguishable from those of cases of typhoid fever, as frequently seen among children. Eleven children had a temperature of over 104 degrees F. on or about February 19th, and some who seemed to speedily recover showed a second rise of temperature on the 25th

and 26th, the diarrhoea still continuing. On March 1st I used the Widal serum test for typhoid with negative results in all cases, and being the eleventh day of the illness, this was considered practically to exclude typhoid fever. The children gradually recovered with the exception of the two who died in February. I consider the outbreak due to a mixed infection, the bacilli of pneumonia or influenza or both, being associated with the bacillus enteritidis sporogenes, the children being predisposed to illness by the extremely cold weather and by the constant closure of doors and windows in a badly arranged and overcrowded nursery. To prevent the recurrence of such attacks I recommended the Guardians—

1. To have all the water tanks cleansed and to obtain a guarantee from the High Level Water Company that only spring or pure water shall be supplied to the Workhouse. To reconsider the present system of storing water.

2. An inspection of all drains and drain connections under the supervision of a competent architect, and suggested that in future no alteration or new connections with the drains should be made except under such supervision. All closets used by men or as slop closets to have impermeable floors.

3. All the gullies in the kitchen to be closed, and the drains sealed and removed; water from the troughs to discharge over gullies outside the kitchen. The water closet to be completely shut off from the kitchen.

4. The proper ventilation of the nursery and suitable arrangements for washing feeding utensils and for storing dirty linen.

I am unable to say whether any of these recommendations have been complied with.

Public Elementary Schools.

The attendance at the schools, both Board and Voluntary for the past three years has been as follow :—

	Monthly Average Number on Books.	Monthly Average Attendance.	Percentage Attendance.
1899	6,998	6,057	86·5
1900	6,945	5,967	85·9
1901	6,967	3,099	87·5

I am indebted to Mr. A. Neate for the above information. During the past year no school has been closed on account of the prevalence of epidemic disease. We have recently instituted a system of school notification, whereby I am informed of the names and addresses of scholars who are absent from school on account of infectious illness, the homes are visited by an Inspector, and a leaflet concerning infectious disease left at the house, but a Medical Officer is needed for the Elementary Schools.

The Population—1901.

The Census of 1901 showed a decrease in the population of 2,027 since 1891, notwithstanding an increase of 384 in the number of inhabited houses, and a corresponding increase in the rateable value of the City. This was a surprise and a disappointment. The late Medical Officer of Health estimated the population for January, 1896, as 52,494, In the Annual Report for 1897, as the mean of four estimates by different methods, 51,073 was put as the probable population, but for the sake of uniformity with previous reports, I considered the population to be 52,600, and have used these figures for calculating the general death-rate until this year, but in calculating death-rates for the various sub-districts, and also for various age periods, I have always used the census figures for 1891, 51,844 persons. In the present report I have recalculated the Birth-rates and Death-rates for the past ten years, and given a rough estimate of the population for each year. I do not think it possible to make an estimate which may not be open to an error of at least 100 more or less, and therefore I do not see why I should pretend a greater accuracy by not using "round figures."

While the City of Bath is less populous than formerly, the two adjoining sub-districts Twerton and Weston have increased in population by 4,432 persons, obviously the apparent decrease in the population of Bath is due to a too restricted boundary, those living in the suburbs enjoy the advantages of the City, without directly paying the City rate, but indirectly they contribute to the rate and help to make the City prosperous.

VITAL STATISTICS.

Quarterly Returns of Births and Birth-Rates, 1901.

		Births Registered.	Winter.	Spring.	Summer.	Autumn.	Year.
BATH	Legitimate ..	..	236	251	226	227	940
	Illegitimate ..	..	11	8	10	6	35
	Total ..	..	247	259	236	233	975
	Rate per 1,000 ..	..	19.9	20.8	19.0	18.8	19.6
	English Rate per 1,000		28.8	28.7	28.6	27.8	28.5*

* This is the lowest recorded English Birth-Rate.

Marriages Registered in the City of Bath.

Quinquennial Means 1891-5, 1896-1900, and for 1901.

	Winter.	Spring.	Summer.	Autumn.	Year.	Rate.
1891-1895	88	122	131	126	466	17.9
1896-1900	78	124	129	121	451	18.0
1901	78	131	127	124	460	18.47

**Annual Rate of Mortality per 1,000 in Town and Country
Districts of England and Wales, and in Bath and
sub-districts, in each quarter of the Year 1901.**

	Winter.	Spring.	Summer.	Autumn.	Year.
England and Wales ..	18.2	15.8	16.9	16.6	16.9
Town Districts ..	18.7	16.2	18.2	17.5	17.7
Country Districts ..	17.2	14.9	14.2	14.7	15.3
Bath corrected ..	18.9	13.3	13.1	15.7	15.2
Walcot corrected ..	20.3	13.8	14.0	17.0	16.3
Lyn-Wid corrected ..	16.8	10.4	10.0	12.7	12.7
Bathwick corrected ..	9.8	13.2	13.2	11.5	11.7

**Annual Death Rates per 1,000 from all causes, and from
seven Zymotic Diseases, 1901.**

	1	2	3	4	5	6	7	8	9	10
	All Causes.	Zymotic Diseases (Cls. 3-9).	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhea.	Deaths under 1 Year per 1,000 Births.
England and Wales	16.9	2.05	0.01	0.27	0.13	0.27	0.30	0.16	0.91	151
Bath ..	16.1	0.79	—	—	0.06	0.16	0.20	0.04	0.32	104
33 Great Towns ..	18.6	2.68	0.02	0.43	0.17	0.30	0.36	0.17	1.23	168
67 other large towns	17.1	2.24	0.00	0.25	0.14	0.28	0.30	0.18	1.09	163
England and Wales, less the 100 Towns	15.7	1.56	0.01	0.17	0.10	0.24	0.25	0.14	0.65	157

**Births and Deaths registered during the Year 1901—
City of Bath.**

DISTRICT.	BIRTHS.				DEATHS, including N.R.			
	Male.	Female.	Persons.	Rate.	Male.	Female.	Persons.	Crude Rate.
Walcot ..	286	258	546	17.5	203	224	427	16.68
Hospitals ..	2	—	—		51	42	93	
Lyn. and Wid.	189	171	390	27.1	77	92	169	20.80
Workhouse ..	9	6	—		66	64	130	
Bathwick ..	22	32	54	12.6	18	39	57	13.30
Bath..	508	467	975	19.6	415	461	876	17.59

**Corrected Sub-District Mortality, including seven deaths
at Statutory Hospital.**

	LOCALITY OF DEATH.						Corrected Rates.	
	Private House. Male.	Private House. Female.	Hospital. Male.	Hospital. Female.	Work-house. Male.	Total Persons.	Local.	Standard Population.
Walcot ..	195	218	31	26	38	42	550	17.6
Lyn. & Wid.	77	93	2	4	9	11	196	13.6
Bathwick ..	17	35	—	1	2	2	57	13.3
Bath ..	289	346	33	31	49	55	803	16.1
Non-Munic.	9	8	18	12	17	9	73	—

Table I.

Vital Statistics of Whole District during
1901 and Previous Years.

COUNTY BOROUGH OF BATH.

Year.	Population estimated to Middle of each Year.	Births.		Total Deaths Registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-Residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Net Deaths at all Ages belonging to the District	
				Under 1 Year of Age.		At all Ages.					Number	Rate.*
		3 Number.	4 Rate.*	5 Number.	6 Rate per 1,000 Births registered.	7 Number.	8 Rate.*					
1	2	3	4	5	6	7	8	9	10	11	12	13
1891	51,800	1147	22.14	127	111	1060	20.46	192				
1892	51,600	1102	21.36	140	127	1016	19.69	201	..	..	..	..
1893	51,400	1057	20.56	126	119	961	18.69	195	..	..	..	..
1894	51,200	1112	21.72	146	131	911	17.79	179	..	..	..	..
1895	51,000	1107	21.71	149	134	956	18.74	170	..	..	..	..
1896	50,800	1087	20.97	153	141	921	17.79	195	55	7	873	17.18
1897	50,600	1009	19.94	129	128	861	17.02	179	61	5	805	15.91
1898	50,400	1003	19.84	137	136	856	16.98	194	73	2	785	15.57
1899	50,200	1020	20.32	134	131	961	19.14	229	81	3	882	17.57
1900	50,000	959	19.14	121	126	933	18.66	193	89	6	850	17.00
Aver. 1891- 1900.	50,780	10602	20.81	1362	128	9436	18.58	..	..	..	..	..
1901	49,800	973	19.58	101	104	876	17.59	177	73	7	803	16.12

*Rates in Columns 4, 8 and 13 calculated per 1,000 of estimated population. To correct death-rate to standard population multiply by 0.943. Corrected death-rate 1901, 15.20 per 1,000 standard population.

NOTE.—The deaths included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public institutions" to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums.

Table II.

Vital Statistics of Separate Localities in 1901 and previous years.

POPULATIONS, BIRTHS AND DEATHS.

Names of Localities.	WALCOT.			LYNCOMBE AND WIDCOMBE.			BATHWICK.			BATH.			Names of Localities.
	Male.	B.	D.	Male	B.	D.	Male	B.	D.	Male	B.	D.	
Population 1891.	13,187	20,173		6,344	7,426		1,594	3,120		21,125	30,719		Population 1891.
	E.	D.		B.	D.		B.	D.		B.	D.		Persons 51,844
Year													Year
1891	363	343	332	195	147	194	30	34	33	588	524	559	1891
1892	378	309	321	164	111	178	28	20	32	570	440	531	1892
1893	322	283	323	190	132	128	28	27	32	540	442	517	1893
1894	337	300	352	186	116	182	27	19	28	550	435	562	1894
1895	359	272	342	170	135	167	36	17	33	565	424	542	1895
1896	371	280	299	186	132	182	19	30	29	576	442	510	1896
1897	335	273	299	164	99	158	33	17	19	532	389	477	1897
1898	318	271	280	200	116	158	23	26	24	541	413	462	1898
1899	307	283	307	186	129	176	21	21	23	514	433	506	1899
1900	297	256	267	171	110	176	26	16	23	495	382	466	1900
1901	288	254	258	198	143	177	22	18	32	508	415	467	1901
Population	12,236	18,932		6,512	7,860		1,384	2,900		20,132	29,692		Population
													49,824

The Census return for population of sub-districts not yet received. The figures given are not officially confirmed.

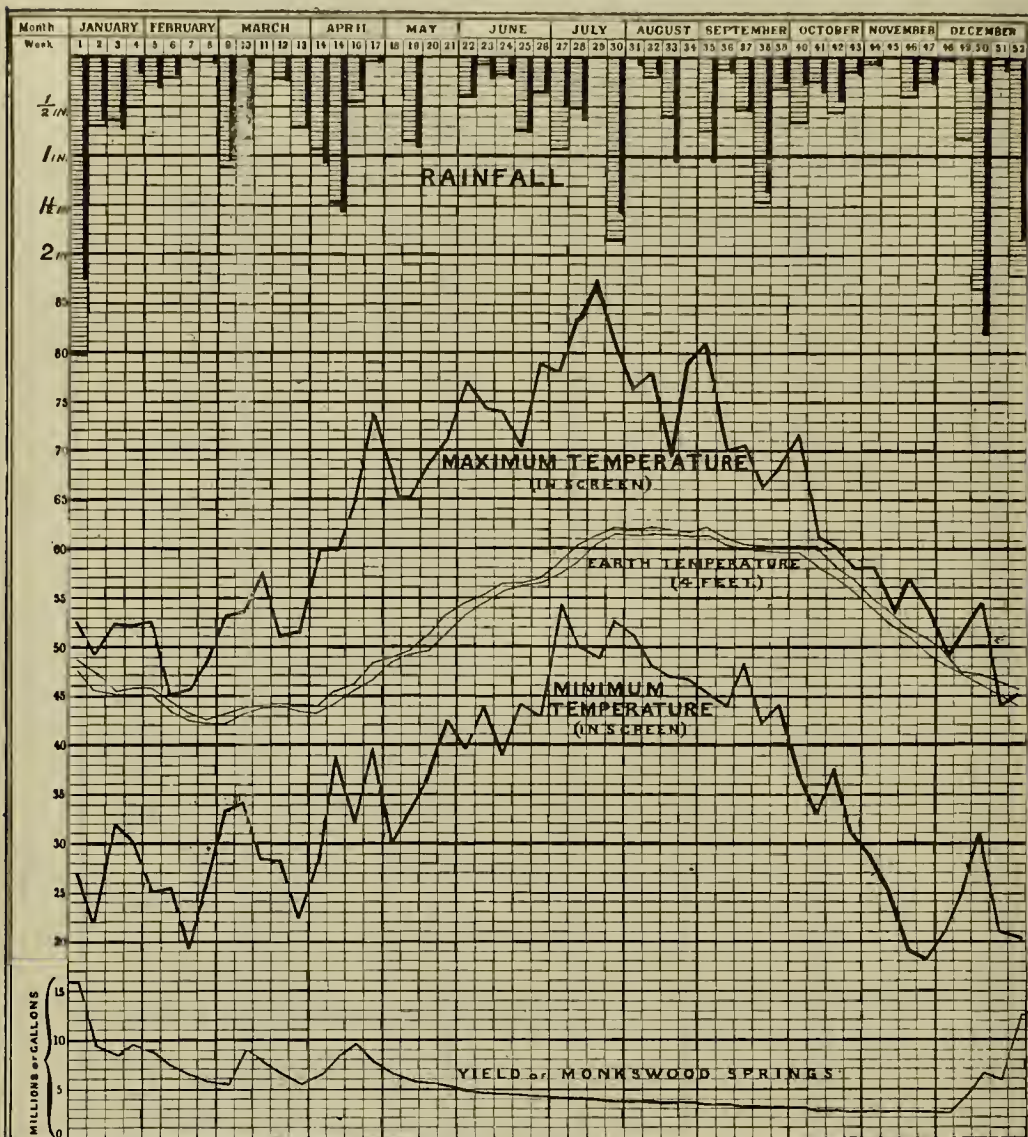
DEATHS IN WHOLE DISTRICT AT SUBJOINED AGES.

DEATHS IN LOCALITIES.

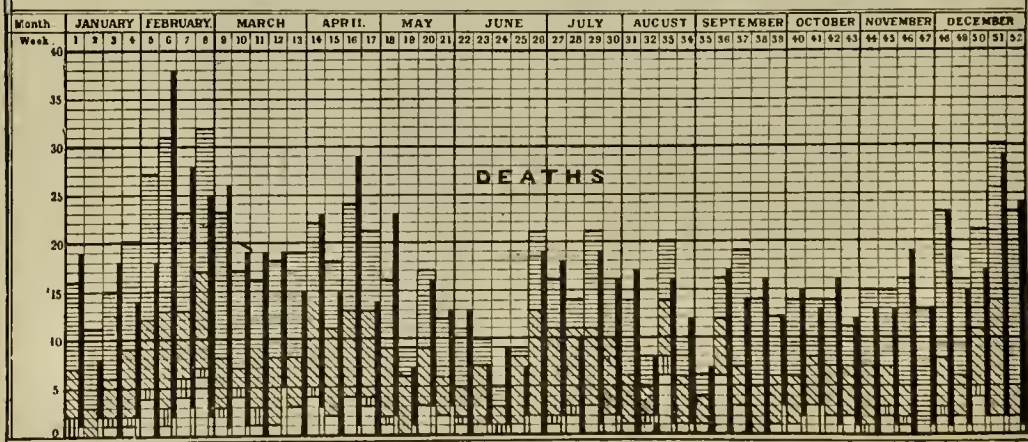
CAUSES.	PER- SONS.	M. F.		1-5		5-10		10-15		15-20		20-25		25-35		35-45		45-55		55-60		60-65		65-75		75-80		80-85		85-90		90-95		95-100		100-105		105-110		110-115		115-120		120-125		125-130		130-135		135-140		140-145		145-150		150-155		155-160		160-165		165-170		170-175		175-180		180-185		185-190		190-195		195-200		200-205		205-210		210-215		215-220		220-225		225-230		230-235		235-240		240-245		245-250		250-255		255-260		260-265		265-270		270-275		275-280		280-285		285-290		290-295		295-300		300-305		305-310		310-315		315-320		320-325		325-330		330-335		335-340		340-345		345-350		350-355		355-360		360-365		365-370		370-375		375-380		380-385		385-390		390-395		395-400		400-405		405-410		410-415		415-420		420-425		425-430		430-435		435-440		440-445		445-450		450-455		455-460		460-465		465-470		470-475		475-480		480-485		485-490		490-495		495-500		500-505		505-510		510-515		515-520		520-525		525-530		530-535		535-540		540-545		545-550		550-555		555-560		560-565		565-570		570-575		575-580		580-585		585-590		590-595		595-600		600-605		605-610		610-615		615-620		620-625		625-630		630-635		635-640		640-645		645-650		650-655		655-660		660-665		665-670		670-675		675-680		680-685		685-690		690-695		695-700		700-705		705-710		710-715		715-720		720-725		725-730		730-735		735-740		740-745		745-750		750-755		755-760		760-765		765-770		770-775		775-780		780-785		785-790		790-795		795-800		800-805		805-810		810-815		815-820		820-825		825-830		830-835		835-840		840-845		845-850		850-855		855-860		860-865		865-870		870-875		875-880		880-885		885-890		890-895		895-900		900-905		905-910		910-915		915-920		920-925		925-930		930-935		935-940		940-945		945-950		950-955		955-960		960-965		965-970		970-975		975-980		980-985		985-990		990-995		995-1000		1000-1005		1005-1010		1010-1015		1015-1020		1020-1025		1025-1030		1030-1035		1035-1040		1040-1045		1045-1050		1050-1055		1055-1060		1060-1065		1065-1070		1070-1075		1075-1080		1080-1085		1085-1090		1090-1095		1095-1100		1100-1105		1105-1110		1110-1115		1115-1120		1120-1125		1125-1130		1130-1135		1135-1140		1140-1145		1145-1150		1150-1155		1155-1160		1160-1165		1165-1170		1170-1175		1175-1180		1180-1185		1185-1190		1190-1195		1195-1200		1200-1205		1205-1210		1210-1215		1215-1220		1220-1225		1225-1230		1230-1235		1235-1240		1240-1245		1245-1250		1250-1255		1255-1260		1260-1265		1265-1270		1270-1275		1275-1280		1280-1285		1285-1290		1290-1295		1295-1300		1300-1305		1305-1310		1310-1315		1315-1320		1320-1325		1325-1330		1330-1335		1335-1340		1340-1345		1345-1350		1350-1355		1355-1360		1360-1365		1365-1370		1370-1375		1375-1380		1380-1385		1385-1390		1390-1395		1395-1400		1400-1405		1405-1410		1410-1415		1415-1420		1420-1425		1425-1430		1430-1435		1435-1440		1440-1445		1445-1450		1450-1455		1455-1460		1460-1465		1465-1470		1470-1475		1475-1480		1480-1485		1485-1490		1490-1495		1495-1500		1500-1505		1505-1510		1510-1515		1515-1520		1520-1525		1525-1530		1530-1535		1535-1540		1540-1545		1545-1550		1550-1555		1555-1560		1560-1565		1565-1570		1570-1575		1575-1580		1580-1585		1585-1590		1590-1595		1595-1600		1600-1605		1605-1610		1610-1615		1615-1620		1620-1625		1625-1630		1630-1635		1635-1640		1640-1645		1645-1650		1650-1655		1655-1660		1660-1665		1665-1670		1670-1675		1675-1680		1680-1685		1685-1690		1690-1695		1695-1700		1700-1705		1705-1710		1710-1715		1715-1720		1720-1725		1725-1730		1730-1735		1735-1740		1740-1745		1745-1750		1750-1755		1755-1760		1760-1765		1765-1770		1770-1775		1775-1780		1780-1785		1785-1790		1790-1795		1795-1800		1800-1805		1805-1810		1810-1815		1815-1820		1820-1825		1825-1830		1830-1835		1835-1840		1840-1845		1845-1850		1850-1855		1855-1860		1860-1865		1865-1870		1870-1875		1875-1880		1880-1885		1885-1890		1890-1895		1895-1900		1900-1905		1905-1910		1910-1915		1915-1920		1920-1925		1925-1930		1930-1935		1935-1940		1940-1945		1945-1950		1950-1955		1955-1960		1960-1965		1965-1970		1970-1975		1975-1980		1980-1985		1985-1990		1990-1995		1995-2000		2000-2005		2005-2010		2010-2015		2015-2020		2020-2025		2025-2030		2030-2035		2035-2040		2040-2045		2045-2050		2050-2055		2055-2060		2060-2065		2065-2070		2070-2075		2075-2080		2080-2085		2085-2090		2090-2095		2095-2100		2100-2105		2105-2110		2110-2115		2115-2120		2120-2125		2125-2130		2130-2135		2135-2140		2140-2145		2145-2150		2150-2155		2155-2160		2160-2165		2165-2170		2170-2175		2175-2180		2180-2185		2185-2190		2190-2195		2195-2200		2200-2205		2205-2210		2210-2215		2215-2220		2220-2225		2225-2230		2230-2235		2235-2240		2240-2245		2245-2250		2250-2255		2255-2260		2260-2265		2265-2270		2270-2275		2275-2280		2280-2285		2285-2290		2290-2295		2295-2300		2300-2305		2305-2310		2310-2315		2315-2320		2320-2325		2325-2330		2330-2335		2335-2340		2340-2345		2345-2350		2350-2355		2355-2360		2360-2365		2365-2370		2370-2375		2375-2380		2380-2385		2385-2390		2390-2395		2395-2400		2400-2405		2405-2410		2410-2415		2415-2420		2420-2425		2425-2430		2430-2435		2435-2440		2440-2445		2445-2450		2450-2455		2455-2460		2460-2465		2465-2470		2470-2475		2475-2480		2480-2485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1901.

Temperature, Rainfall and Yield of Springs.



DEATHS.



W.A. CRAVEN.

Total deaths actually occurring weekly. Age periods under 1, 1-5, 5-60 and 60 years upwards as shown by shaded column, blank space at base indicates under 1 year of age. Total deaths registered during each week by solid black line, blank space at base indicates non-municipal deaths.

Deaths and Death Rates.

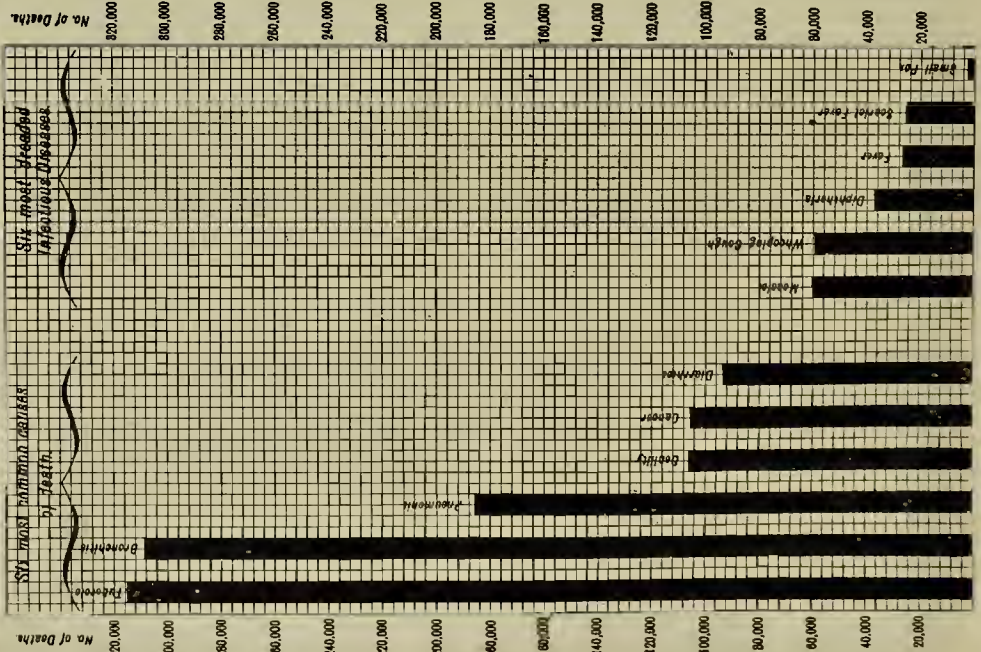
The total number of deaths registered in Bath for the year 1901, was 869 as against 933 in 1900. This is equivalent to a crude death-rate of 17·45 per 1,000 persons of all ages. But of this number 73 were non-residents brought into the district on account of sickness or infirmity, and dying in Public Institutions or Private Nursing Homes. Among those who left Bath on account of sickness, and who died in Public Institutions outside the Municipal boundary were 7 children, and no information concerning the deaths of any other residents has been received. The nett deaths were therefore 803, and the nett death-rate 16·12 which multiplied by 0·9432 gives a corrected death-rate of 15·20 per 1,000 of all ages in standard population. The corrected death-rate for 1900 was 15·24 per 1,000. There were 39 deaths from the so-called seven principal zymotic diseases, equivalent to a zymotic death-rate of 0·78 per 1,000 of all ages as against 0·70 last year. The number of deaths under one year of age was 101, the number of births 975, therefore the infantile mortality per 1,000 births was 104, compared with 126 per 1,000 births in 1900. For England and Wales the following were the figures ;—Death-rate from all causes 16·9, Zymotic Death-rate 2·05, Infantile Mortality 151. The comparison is favourable to Bath, as it always is.

The causation of mortality is shown in the usual tables, but it may be interesting to mention here the principal diseases, and the number of deaths, including non-residents, giving the death-rate per 1,000 population and the comparative mortality per 1,000 deaths from all causes.

Cause of Death.	All Causes.	Heart Disease.	Cancer.	Tuberculosis	Bronchitis.	Pneumonia.	Apoplexy and Hemiplegia.	Seven Zymotic.
Number of Deaths	869	149	82	75	73	65	62	39
Per 1,000 all causes	1000	171	94	86	84	75	71	45
Per 1,000 persons	17·4	3·4	1·6	1·5	1·5	1·3	1·2	0·8

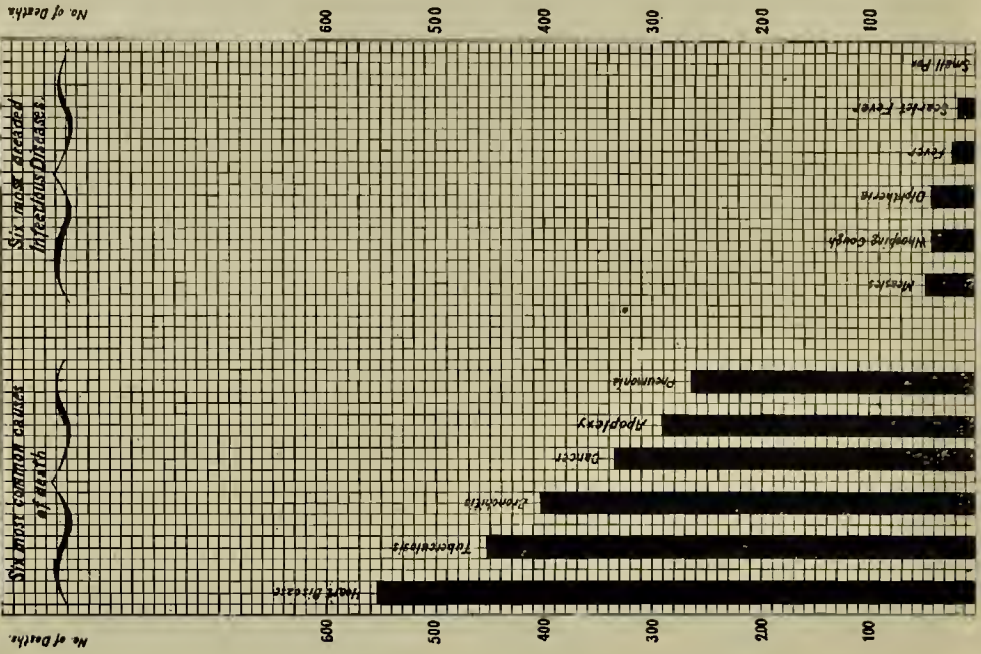
Heart disease is seen to be the principal registered cause of death in this city, 117 deaths were ascribed to organic disease of the heart, and 32 to "heart failure." These deaths were principally among aged persons, no less than 102 being persons over 60 years of age. Heart failure is probably the most natural and least painful termination of life, and it is not surprising to find such a large proportion of deaths due to this cause in such a population as ours. Where less attention is given many of these deaths would have been ascribed to "old age," but this would mean that the cause of death had not been ascertained. Organic disease of the heart frequently owes its origin to a neglected attack of fever in early life, or to influenza in those past middle life : most fatal diseases are the direct or indirect result of some minor disease, which, if recognized and properly treated, might have been cured without much permanent injury to the system, just as the fever caused by the tubercle bacillus may be cured.

CHART NO. 1.



Number of Deaths from several causes occurring in England and Wales during the 5 years, 1891-1895.

CHART NO. 2.



Number of Deaths from several causes occurring in Bath during the 5 years, 1896-1900.

Cancer caused 82 deaths, 76 among residents, and 6 among those brought to our public institutions for treatment. At present we are still in the dark as to the cause of this disease. Much attention is now being given to this subject but early recognition, the use of the opium pipe and surgical treatment, where possible, is all as can be offered. I don't think that there is any local cause for the prevalence of this disease but having a large well-to-do senile population we should naturally expect to find a large number of deaths from this cause.

Tuberculosis.—With regard to this disease the outlook is full of promise, but the progress made in some districts is much greater than in others as can be seen from the table on page 50. In the Registration District of Bath during the past forty years the death rate from tuberculosis has been reduced to less than one half the previous rate, and in the City of Bath the improvement has been still more marked.

During the year 1867 there were 202 deaths from tuberculosis in Bath, giving a death-rate of 384 per 100,000. From phthisis alone there were 132 deaths, equal to 251 per 100,000. In the following year the total number of deaths from tuberculosis was 204. During the year 1900 there were 82 deaths from all forms of tuberculosis, a rate of 165 per 100,000; and 58 deaths from phthisis alone, a rate of 117 per 100,000 persons. During 1901 the total number of deaths from tuberculosis was 75. This disease is no longer the principal cause of death in this city, although it still claims more victims than any other disease in England and Wales. These facts are graphically shown in the accompanying charts.

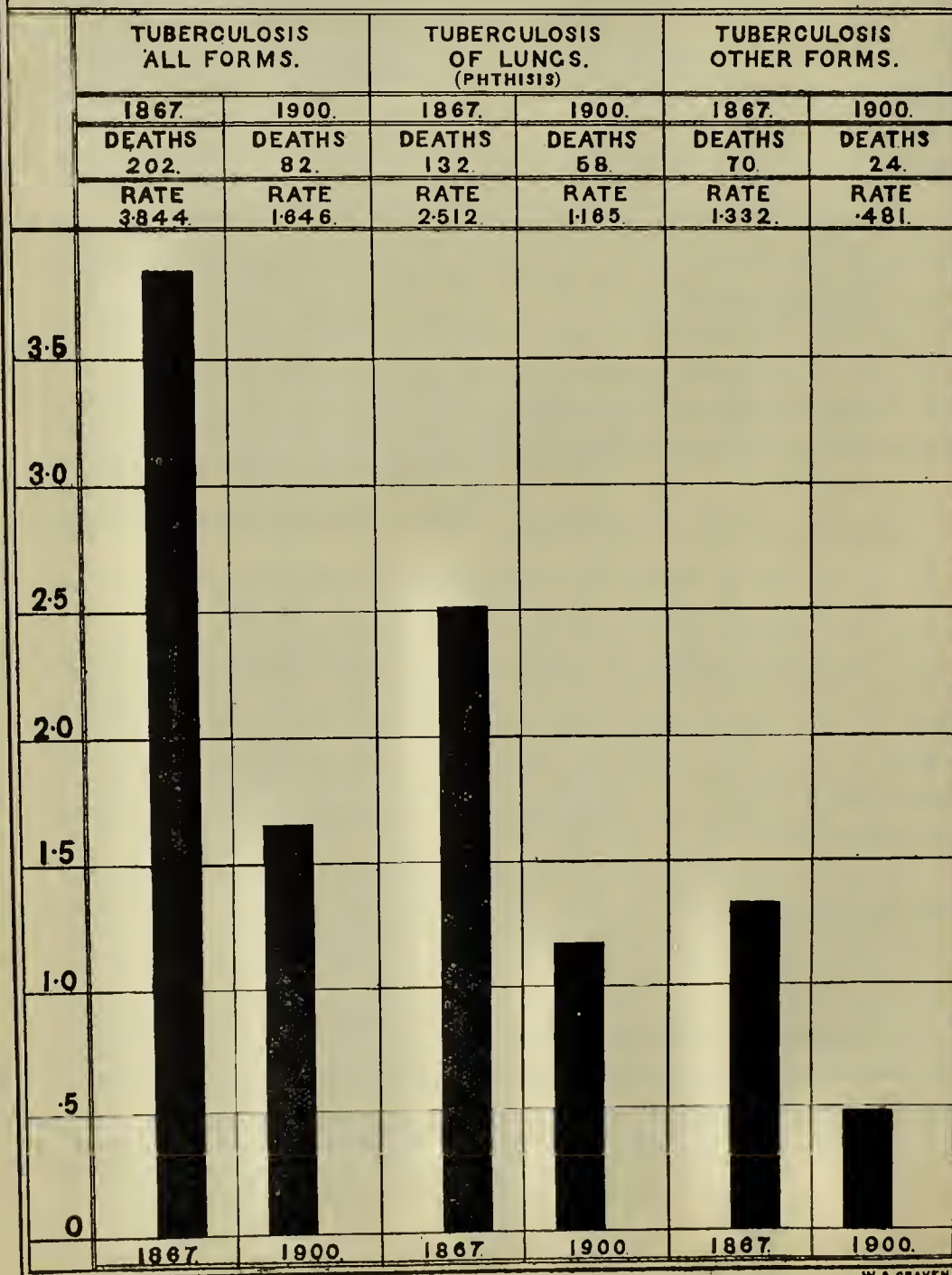
I have had all deaths from tuberculosis in Bath for a period of over thirty-five years referred to the houses in which the deaths took place, so that when we get a death from tuberculosis I can look up the history of the house in which it occurs, and take steps accordingly. Deaths are unevenly distributed, in some streets there has not been during thirty-two years a single death from any form of tuberculosis, in others there have been numerous deaths. In one street consisting of 32 houses there were no less than 52 deaths, 47 from phthisis and only 5 from other forms of tuberculosis, not including the deaths of those persons who died in the Bath Workhouse. Special large-scale maps for the locality in which this street is situated were therefore prepared, showing all the deaths from tuberculosis for a period of thirty-five years; a separate map was used for each decennium, and a small map for an intermediate period of five years, during which great improvements were made by the owner of the estate. A black spot indicates a death from phthisis, a triangular mark a death from some other form of tuberculosis. The date of each death is shown in a small table; when the number of the house could not be ascertained the mark is placed in the roadway.

I have had the map reproduced by photogravure, as it seems an excellent object lesson, showing what may be done by improvements of this kind. The surrounding locality is, of course, improved, and the infectious character of phthisis clearly shown. During the ten years 1866-75 there were in this small locality 34 deaths from tuberculosis;

CITY OF BATH.

DECREASE OF TUBERCULOSIS.

DEATHS AND DEATH-RATES, 1867 AND 1900.



during 1876-85, 31 deaths; during the five years 1886-90 the alterations were made, and 11 deaths occurred during this period; during the ten years 1891-1900 there were only 5 deaths from tuberculosis. The population has been slightly reduced in number and perhaps bettered in quality, but the new houses are all fully occupied tenement houses, fulfilling the conditions which enables me to give a certificate exempting from house duty, and I think the improvement is a real one—a clear gain to humanity—it did not rob Peter to pay Paul by driving poor persons from one district to another.

The distribution of phthisis among the sexes is so remarkable that I am induced to direct your attention to some figures as to the local and secular causes of the variation of this disease. In England and Wales the phthisis death-rate was greater among females than among males until 1865. Since 1866 the phthisis death-rate among males has been constantly above that of females, and the difference is now 42 per 100,000, the rate for males being in 1899, 155; that for females 113 per 100,000. Chart B shows the curves for England and Wales and for the city of Bath. We should, of course, be very cautious in drawing conclusions from special death-rates among a small population, but reference to the chart showing the curves of death-rates from all causes in England and Bath for the same period (published in my Annual Report for 1898) shows that the death-rate from all causes in Bath has fluctuated pretty much the same as the death-rate in England and Wales, being uniformly about 2 per 1,000 below the standard rate. The high death-rate in Bath during 1878 furnished the subject of a special report by the late medical officer of health, Dr. Brabazon. He considered the unusual death-rate from phthisis as most probably owing to sudden changes of temperature; but for the next four years there was a considerable fall in the death-rate, followed by a sudden rise in 1883. If we neglect these annual variations, we still have to account for a very real difference between the male and female death-rates from phthisis in Bath, and their variation from the English standards.

During the decennium 1881-90 the death-rates per 100,000 in England and Wales were: male, 185; female, 161. In Bath during the same period the rates were: males of all ages, 208; between the ages of 15 and 55, 318; females of all ages, 120; between the ages of 15 and 55, 169. That is to say, in middle life the incidence of phthisis on males in Bath was nearly double that on females. During the decennium 1891-1900 the difference is even more marked. The phthisis rate per 100,000 was: males, 173; females, 89. The first hypothesis which I formed to account for the difference in the sexual incidence of phthisis was that our young men often sought employment away from Bath in larger towns, and, contracting phthisis, came home to die; while our female population, consisting largely of servants coming from rural districts, when they became invalids went away from Bath to die. Systematic inquiry during the past few years shows that this is not the true explanation, and I am continuing my investigations with the view of obtaining more information. Possibly the difference may be due to some extent to the fact that improvement in the general condition of houses has not been accompanied by a corresponding

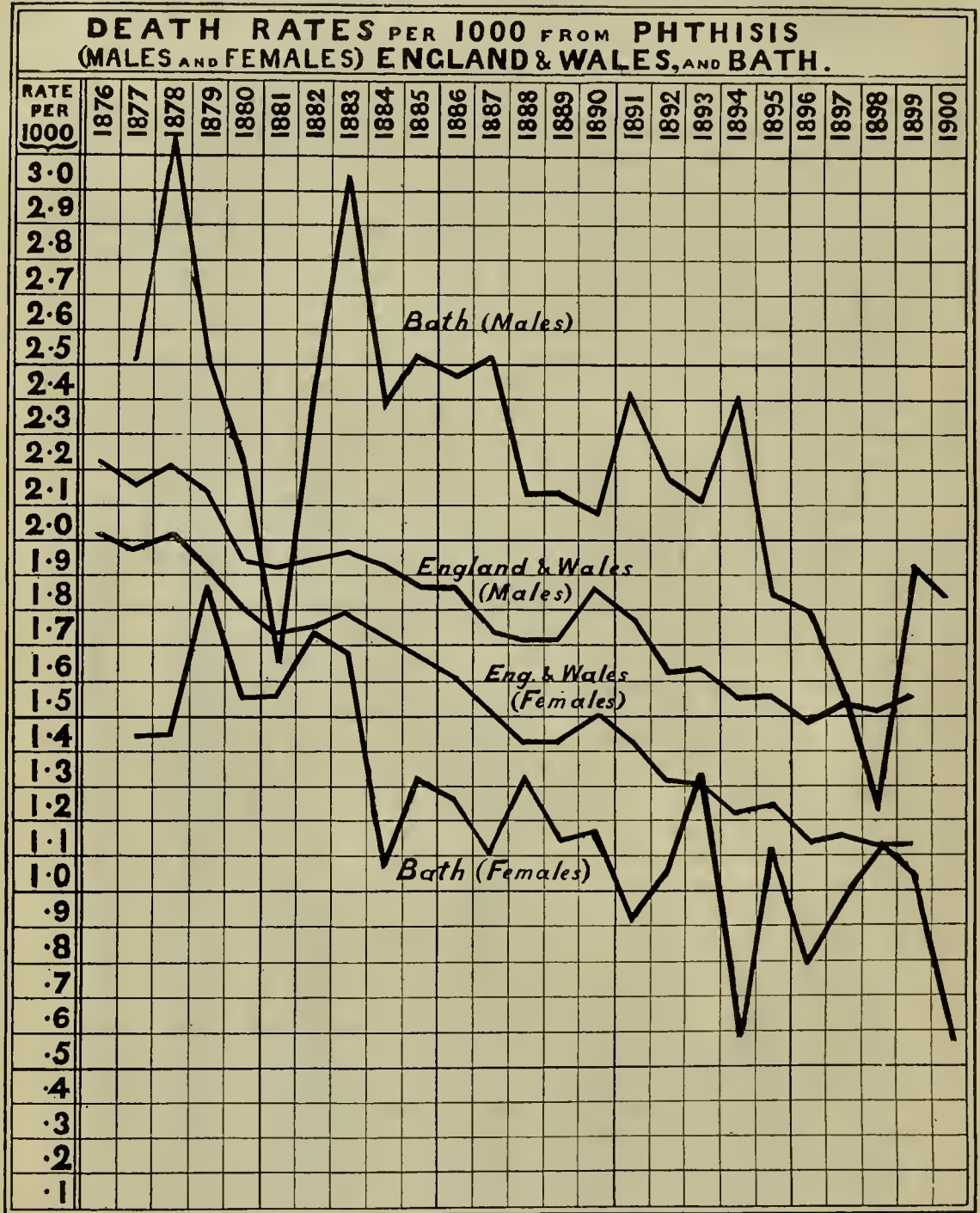


CHART B.

DEATH-RATES FROM PHTHISIS PER 100,000 PERSONS, 1861-70 AND 1892-9.

GLOUCESTERSHIRE.

DISTRICT.	DEATH-RATE. 1861-70	PER CENT.
Bristol	284 (6)	194 68·3
Clifton, Barton Regis..	230 (6)	137 59·6
Chipping Sodbury	156	69 44·2
Thornbury	158	102 64·5
Dursley	161	90 55·9
Westbury-on-Severn	143	73 51·0
Newent	201	90 44·3
Gloucester	222	139 62·6
Wheatenhurst	168	93 55·4
Stroud	183	108 59·0
Tetbury	178	110 61·8
Cirencester	179	105 58·7
Northleach	187	72 38·5
Stow-on-the-Wold	205	93 45·4
Winchcomb	204	66 32·4
Cheltenham	207	124 59·9
Tewkesbury	241	132 61·7

SOMERSETSHIRE.

DISTRICT.	DEATH-RATE. 1861-70	PER CENT.
Williton	173	111 64·2
Dulverton	144	105 72·9
Wellington	191	103 53·9
Taunton	204	113 55·4
Bridgwater	187	92 49·2
Langport	201	121 60·2
Chard	188	110 58·5
Yeovil	205	89 43·4
Wincanton	185	110 59·5
Frome	164	93 56·7
Shepton Mallet	170	65 38·2
Wells	211	143 67·8
Axbridge	163	143 87·8
Clutton	175	78 44·6
Bath	219	112 51·2
Keynsham	199	102 51·3
Bedminster	177 (6)	117 66·1

WILTSHIRE.

DISTRICT.	DEATH-RATE. 1861-70	PER CENT.
Highworth, Swindon..	187	108 57·8
Cricklade	187	137 73·3
Malmesbury	172	100 58·1
Chippenham	231	102 44·2
Calne	166	72 43·4
Marlborough	186	94 50·5
Devizes	265	111 41·9
Melksham	217	87 40·1
Bradford	168	90 53·6
Westbury	161	80 49·7
Warminster	177	105 57·6
Pewsey	215	104 48·4
Amesbury	246	92 37·4
Alderbury	253 } 248	140 56·5
Salisbury	234 }	
Wilton	193	81 42·0
Tisbury	170	73 42·9
Mere	151	91 60·3

improvement in workshops. The number of employées has increased, while the cubic capacity of the workshops remain the same; but, of course, females are largely employed in workshops, so this explanation seems doubtful. The new factories which exist in the city are models of what factories should be. I am glad to be able to say that, although our death-rate from phthisis is below the average of England and Wales, and much below the average of most other large towns, the City Council are doing everything which a corporate body may lawfully do to accelerate the decrease in the mortality from consumption. The same fees are paid for the notification of phthisis as are paid for the notification of other infectious diseases; disinfection is carried out free of charge; model bye-laws for tenement houses and for the control of the food supply have been recently adopted; houses for the working classes are being built; three schemes are rapidly progressing making provision for about ninety new small houses; and, lastly, a contribution of £500 towards the building fund of Winsley Sanatorium for Consumptives, and an annual payment of £130 for two beds, have been promised by the Corporation.

Conclusion.

In conclusion I have to state that my report is of somewhat greater volume than usual because I was anxious in the first report of this century to give a general summary of the sanitary condition of the city and I have not had time to rewrite and condense my remarks. The year has been one of good routine work and I cannot speak too highly of the assistance I have had from each member of my staff. I regret that we have not had more time to engage in "systematic inspections" independent of such inquiries into unwholesome conditions to which our attention has been officially called by complaints or by sickness, but more cannot be done in this direction without an increase in the staff or in the working hours of the staff: we could very well find work for another Inspector. A Clerk is urgently needed, in some towns smaller than Bath two Clerks are allotted to the Health Department. A shorthand and typewriting Clerk would be of immense service, he could relieve the present staff of some of their clerical work and leave them more time for their proper duties, he would also be useful to the various sub-committees: I have always regretted that so much of the time of the Assistant Inspector should be occupied by his acting as Clerk to the Statutory Hospital Management Committee. I must also again refer to the condition of our Hospital for infectious diseases. The time is fast approaching when we ought either to give up sending patients to the Hospital or to make considerable alterations. Convalescent and Observation Wards and proper Discharging Rooms are absolutely necessary, while in the city we ought to have a Shelter for those persons whose rooms are being disinfected or for persons who have been in contact with dangerous infectious disease; an Ambulance Shed is also required. These are not new requirements—I mentioned them in my first report to you, dated June 29th, 1896, during the small-pox epidemic in Gloucester—the present small-pox epidemic in London, which I take to be even more dangerous to Bath, leads me to bring them again under your notice as calculated to prevent panic and to

guard against disease. A small-pox epidemic in Bath might easily cost £100,000 or about as much as our share in the expenses of the war in South Africa. Finally, I desire to most heartily thank the Chairman and Members of the various Committees of the Urban Sanitary Authority for the very kind consideration they have given to me personally as well as for the attention they have paid to my suggestions.

I remain, their obedient servant,

W. H. SYMONS,

Medical Officer of Health.

Guildhall, Bath :

March 19th, 1902.

CANAL BOATS REPORT, 1901.

In accordance with the Circular of the Local Government Board and the requirements of the Canal Boats Act, 1884, which provides that every Sanitary Authority within whose district any canal or part of a canal is situate shall make an annual report to the Board as to the execution of the Canal Boats Acts, 1877 and 1884, and the regulations made thereunder, I beg to report that in the eleven months of 1901—that is, since February 1, when I commenced my duties as Canal Boat Inspector, to December 31—105 boats were inspected, as compared with 66 in the previous year.

The condition of the boats and their occupants as regards the matters dealt with in the Acts was generally good. There were only three contraventions of the Acts and regulations, and these were not of a serious nature: in two of the cases the cabin roof leaked, and in the third the cabin was dilapidated and dirty. These defects were remedied upon the owners being written to. It was not necessary to serve notices or take legal proceedings in any case.

There was no illness on any of the boats when visited by me, nor has any notification of infectious disease been received during the year.

Two boats, registered at Daventry and Swindon, have been removed from the registers upon my reporting that they were unfit for further service. Four boats were laid up for the greater part of the year, and, when used, were used as cargo boats only, and not as dwellings. One boat was re-registered during the year owing to change of ownership and structural alterations, and there has been one application for registration, but the boat is not yet registered, as the repairs are incomplete.

In addition to the inspections referred to I have made frequent inspections of local boats, which ply chiefly between Bath and Bristol. There is an all-round improvement on the boats inspected; the cabins in many cases are models of cleanliness, and where dirty cabins were found it was often due to the nature of the cargo, and as a rule the boat people remedied this as soon as possible. The improvement seems general throughout the country, each year for the past ten years showing a marked and continuous diminution of infringements. Out of the 33,620 inspections made in 1900 in England and Wales it was found necessary to take legal proceedings for breaches of the Acts in 40 cases only.

Mr. Llewellyn, the Government Inspector, visited Bath twice during the year—the 12th of August and the 5th of December; he had no complaint to make or fresh suggestions to offer.

In conclusion, I may say I have never been refused admittance to any boat, and the occupants have willingly received and carried out any suggestions I have made.

WALTER A. CRAVEN,

Inspector under Canal Boats Act.

Inspector of Nuisances Report for the Year ending December 31st, 1901.

House-to-house inspections have been made as follows :—

21 houses in Little Corn Street and Back Street.

5 in Corn Street.

5 in Old Orchard Street.

3 in Calton Road.

16 in Albert Terrace, Widcombe.

3 in Greenfield Place, Widcombe.

9 in Caroline Terrace, Widcombe.

3 in Ferry Lane, Widcombe.

17 in Cornwell Terrace and Row, Walcot.

6 in Williams' Place, Julian Road.

7 in Mount Beacon Place and Cottages.

95

4579 Inspections, visits and re-visits to premises in addition to above.

This number includes house inspections, slaughter houses, offensive trades, common lodging houses, bakehouses, food stores, dairies, canal boats, etc.

245 Nuisances from defective drains and soil pipes were abated by structural works.

105 Nuisances from defective w.c.'s do.

36 " " " waste pipes do.

32 " " " rainwater pipes do.

23 " " " ventilation (windows made to open, etc.)

37 " " " paving.

19 " " " roofs and ceilings.

36 Premises with unsatisfactory water supply have had water supply direct from main substituted.

10 Samples of drinking water submitted for analysis.

8 Samples of drinking water condemned as unfit for drinking purposes.

4 Disused wells closed.

35 Premises cleansed and whitewashed.

3 Overcrowding nuisances abated after notice.

32 Nuisances from ash heaps abated after notice to provide receptacles.

51 Accumulations of ashes, etc., in houses and yards removed after notice to Surveyor.

3 Dangerous buildings reported to Surveyor.

- 12 Nuisances from dung-pits abated.
- 67 Accumulations of manure and other offensive matter removed after notice.
- 16 Nuisances from keeping pigs or other animals in contravention of bye-laws abated after notice.
- 5 New w.c.'s erected in premises previously without w.c. accommodation.
- 6 Smoke nuisances abated after notice.
- 2 Nuisances in slaughterhouses abated after notice.
- 1 Slaughterhouse closed.
- 1 Nuisance abated under Offensive Trades Bye-laws.
- 155 houses inspected in which no nuisance was discovered.
- 887 Inspections of dairies, etc.
- 105 Inspections of canal boats.
- Samples obtained under the Food and Drugs Acts.

Regular inspections of common lodginghouses and slaughterhouses have also been made.

WALTER A. CRAVEN, A.S.I.,

Municipal Offices, Bath.

Inspector of Nuisances. .

FOOD AND DRUGS ACTS.

146 Samples were purchased for analysis under the above Acts ; of these 137 were genuine and 9 not genuine. Proceedings were taken against the vendors in the following cases :—

2 samples of butter containing added water. Case dismissed.

2 samples of butter containing added water and mineral borates. Fine, £20, and £5 5s. costs in each case.

2 samples of butter containing added water and mineral matter. Case dismissed.

1 sample of “yellow crystals” sold as “Demerara.” Fine, 40s. and costs.

1 sample of “yellow crystals” sold as “Demerara.” Fine, £2 2s., and £1 1s. costs, or seven days.

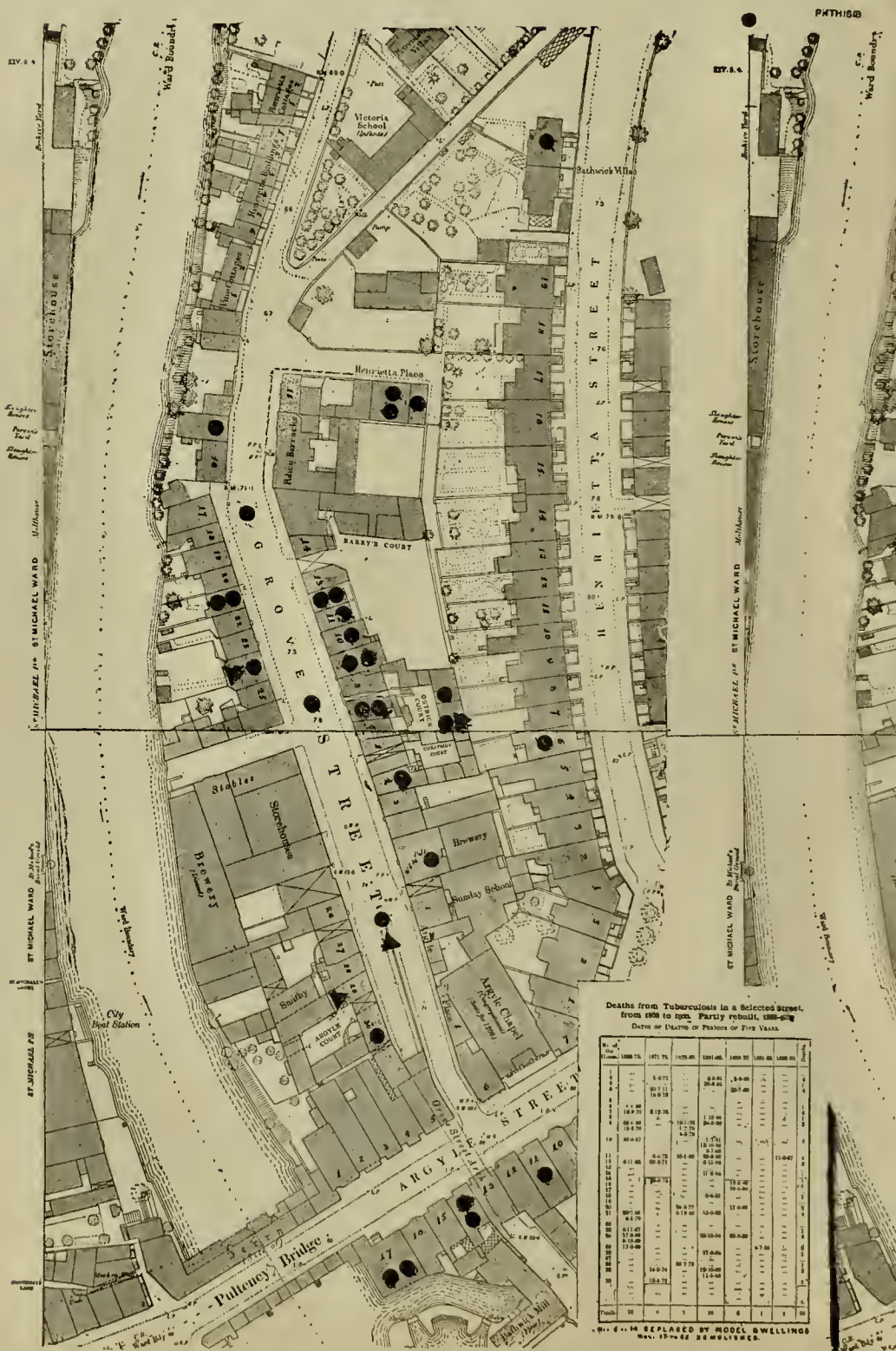
1 sample of margarine sold as butter. Fine, £8 8s., and £2 2s. costs, or one month.

From the Annual Report of the Local Government Board relating to samples obtained under the Food and Drugs Acts in the 237 districts of England and Wales I find that Bath compares very favourably with the best towns and cities both as regards the number of samples taken and the percentage of adulterated articles. The number of samples analysed per person was : In Bath, 1 for every 320 persons, with a percentage of 7·1 adulterated. In London the number was 1 per 312 persons, with 9·8 adulterated, and in the Provinces, 1 sample per every 502 persons, with 8·3 adulterated.

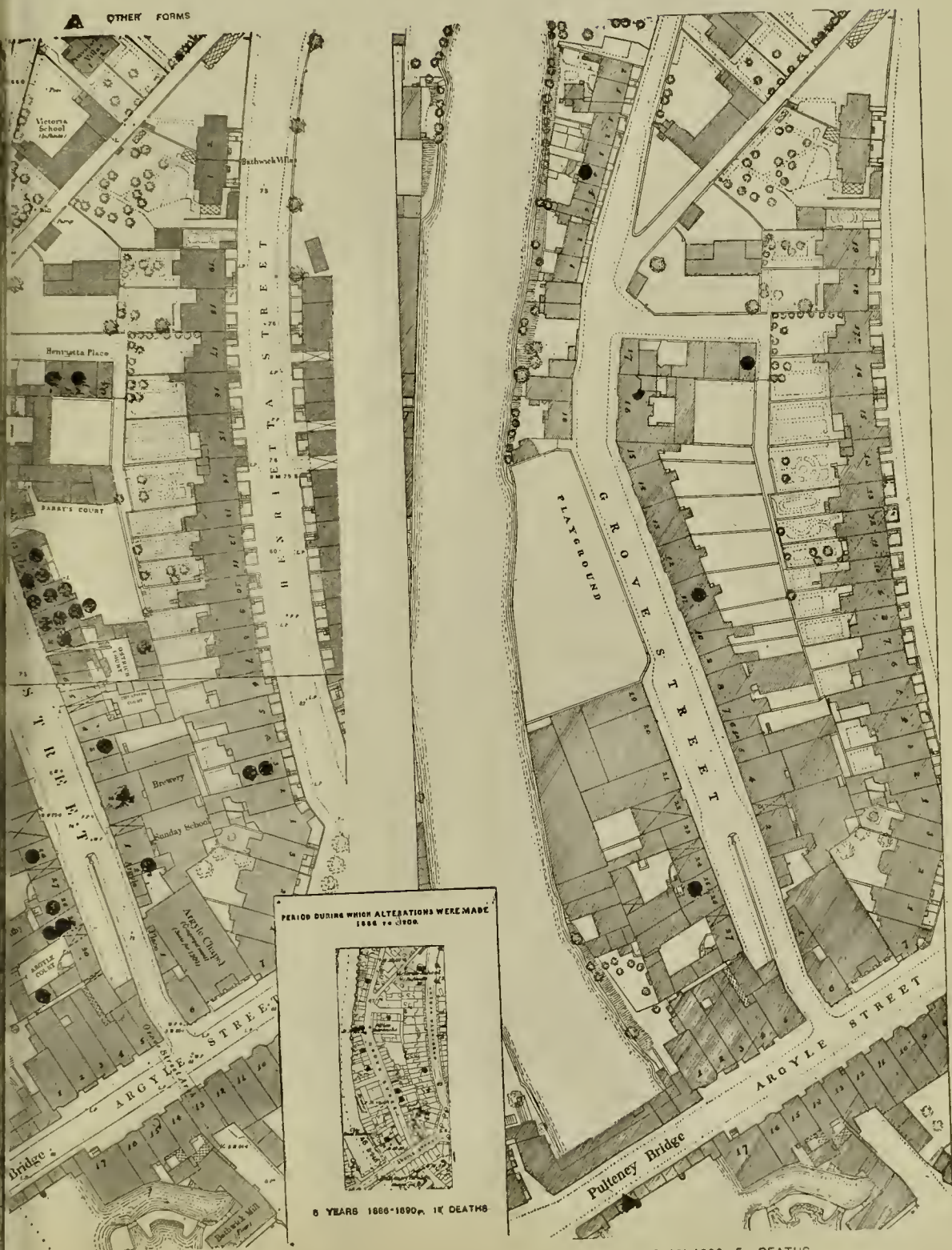
WALTER A. CRAVEN,

Inspector of Food and Drugs.

Deaths from Tuberculosis in a selected locality a Private



and after Insanitary Dwellings were Demolished by
 ement Scheme.



EARS - 1876-85- 31 DEATHS.

